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CONCEPTS INVOLVED IN DEFINING AND IDENTIFYING FARMS

U.S. DEPARTMENT OF AGRICULTURE

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ABSTRACT

This report discusses current and proposed systems of classifying farms. It also reviews alternative definitions aimed at including or excluding from the farming sector, farms of certain sizes or carrying on a certain level of activity.

A review of literature and a series of interviews with informed people were carried out during late 1968 and early 1969 on concepts involved in defining and identifying farms. The investigation reviewed history, emerging problems, and theory of gathering farm data. The author's findings are blended with those from published material and those of the people interviewed to attempt a coherent presentation of the problem. The current and prospective structure of agriculture is delineated and information is presented on available statistics and interrelationships between alternative series.

KEY WORDS: Farms, Census of Agriculture, structure, series, income distribution, statistics.

Report prepared under a contract
between the Economic Research Service,
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PREFACE

This study was undertaken at the request of the Economic Research Service (ERS), U.S. Department of Agriculture, and was performed under a contract between that agency and the author. C. Kyle Randall, Chief, Farm Income Branch, ERS, was the contracting officer and provided helpful suggestions throughout the period of research. Mardy Myers, Farm Income Branch, ERS, coordinated preparation of the report. M. L. Upchurch, Administrator, ERS, and Harry C. Trelogan, Administrator, Statistical Reporting Service, guided the author in determining the scope of the study. Useful suggestions were received from many persons in and out of the Department of Agriculture; some of these suggestions are mentioned in various sections of the report.

In carrying out this assignment, it was felt necessary to develop information in response to questions in two areas: (a) What is the current and prospective structure of agriculture? and (b) What information and statistics now are available, how are they obtained or constructed, and what are the interrelationships between alternative series? Information covering both areas was obtained chiefly from journal articles, professional talks, research reports, and certain memorandums that had been prepared within the Department of Agriculture or elsewhere. Some material was obtained by letters and personal interviews. All of this background information was used in formulating the suggestions regarding definitions and data gathering and publication that are given in the section entitled "Conclusions."

The views and recommendations expressed here are those of the author and do not necessarily represent those of the Economic Research Service, the U.S. Department of Agriculture, nor the author's present employer.

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by

Richard J. Foote 1/

CONCLUSIONS

Cochrane (12, pp. 39-42) 2/ said, in discussing the future development of agriculture:

"The typical farm, as of 2000, will be a huge conglomerate of machines, equipment, and technical processes, mostly operated automatically and watched over by a few skilled workers; the farm of 2000 may be comparable to the fuel-cracking plant of today--miles of pipe, technical production processes, tanks, and gauges, with a few skilled workers supervising the whole operation. . . .

"Livestock production and fattening by 2000 is likely to occur almost entirely in 'factories' with controlled breeding, controlled light and temperature, controlled feeding, complete mechanization and automation, and perhaps completely sterile conditions. . . .

"Crops in 2000 will still be grown on the land--but not just any piece of land. Cropland will be carefully graded and contoured to permit a rigorous control of the use of water. Nutrients in the soil will be tailored to the specific needs of each crop. The soil will be treated to control weeds, harmful organisms, and plant diseases. . . . The weather may be controlled somewhat, and certainly will be better understood and therefore 'controlled' through the use of water and the development of desired characteristics of plants. . . .

"If the idea of the family farm is to survive, ... a way must be found for a well-trained, skillful farm operator to get control, not of $30,000, but of $3,000,000 to get started in farming. ... We could thus in 2000 have family farms in form but not in spirit--farms organized into productive units that are supervised and operated by a family with the help of one or two workers, but managed by and with their financial risks assumed by a nonfarm organization. . . .

"One thing seems certain, the production unit in farming in the year 2000 is going to require a large total investment, its production will be mainly automated and rigorously controlled, and it will need highly skilled and

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2/ Numbers in parentheses refer to literature cited, p. 101.

competent management. The farm of 2000 will be as different from the farm of 1900 as a space rocket is from a BB gun."

Daly, who has also projected number and size of farms, but to 1980 (see p. 99) rather than to 2000, does not appear to expect units as large as those envisaged by Cochrane. If Cochrane is right, then a suggestion by Earl Houseman, of the U.S. Department of Agriculture, would appear applicable. Houseman indicated that the Census of Agriculture might be changed to resemble the Census of Manufactures in the future, with special forms for feedlots, large grain farms, and other specialized farming units. I would go further. If agriculture develops as portrayed by Cochrane, I see no reason to collect special data for it. Instead, farming should be treated like a manufacturing industry, and data should be collected for farming as for any other manufacturing industry.

Proposed Definitions of Agricultural Establishments

Throughout the preparation of this report, the one concept or idea that has come through strongest is that a way must be found to separate the people who live in rural areas chiefly because they enjoy it from those who live there because they make a living from farming. Likewise, nonproductive farms must somehow be separated from productive farms. These needs, to me, far overshadow statistical problems that arise from contracting, integration of operations, corporation farming, and related developments.

Ideally, one would look at net income or value added to separate productive farms from nonproductive farms. However, I agree with the viewpoint of the Census Bureau and the Statistical Reporting Service (SRS) that in practice such a definition would be impossible to apply in connection with sizable samples or complete counts of farms. Gross sales appears to be the only practical classification criterion.

After much thought, I propose the following classifications:

(a) Productive farms
(b) Farm firms
(c) Farm service firms
(d) Manufacturers of agricultural products

Classes (a) and (b) would overlap, and presumably the number of farms would exceed the number of firms. The difference between these two series would measure to some extent the number of farm firms with multifarm operations. However, the accuracy of this measure would be lessened at least in part by farms that had more than one person sharing income.

Productive farms--A productive farm would be defined as an interrelated set of agricultural activities, on a more or less fixed land base, with day-to-day operations supervised or coordinated by one person or family (or a partnership of, for example, no more than three people), and for which sales equaled specified minimums. For a corporate conglomerate engaged in farming, each 10,000-acre unit would be a farm.

In a survey of rural households, the following questions would be asked to determine who lived on farms under this definition:

a. "Were any farm products sold from this place during the past 12 months?" If "Yes,"
b. "What was the approximate value?" If this equals or exceeds $10,000, the place would be called a farm. If this is less than $10,000 but is $2,500 or more,
c. "Did this represent 50 percent or more of the operator's income from

all sources during this 12-month period?" If "yes," the place would be called a farm.

Thus, for individuals, partnerships, or farm corporations, a place would be called a farm if sales exceeded $10,000, or if sales were $2,500 to $9,999 and provided 50 percent or more of the income of the operator. A place selling less than $2,500 would not be a farm even though this amount was the sole income of the operator. The operator would be among the rural nonfarm poor. Places owned by nonfarm corporations, partnerships, or individuals and operated or managed by an individual, a family, or a small partnership would be farms if they met the same requirements as above. I don't know how major producers of citrus, for example, handle their groves. However, if on a large grove, one employee supervises spraying, another pruning, another ground cover or cultivation, and another harvesting, this operation would not be a farm under the proposed definition because no one person or family would be in charge of all operations. Instead, the organization would be a "manufacturer of agricultural products."

A place with crop failure or with land being developed for production would be counted as a farm if it could reasonably be expected to meet the $10,000-sales minimum when in operation or provide $2,500 to $9,999 and 50 percent of operator income. Otherwise, it would not be counted as a farm.

Feedlots would be farms under this definition, as they are now classified by Census. Hatcheries operated completely indoors would not be farms. Some poultry production operations probably would be dropped as farms. Livestock "factories"--those operations with controlled light and temperature and completely sterile conditions--would also be dropped.

In other words, under this definition, farms would be fairly homogeneous in nature and would resemble, at least to a considerable degree, what in the recent past have been considered family-type farms. Some might be very large if day-to-day supervision of the entire operation were provided by a closely knit group of individuals or a single operator or manager.

For such farms, averages per farm would have at least some usefulness as measures of the changing structure of agriculture.

Data in tables 6 and 7, pages 31-32, indicate that probably all of the types of farms for which data are regularly published by USDA would meet the "productive farm" definition. All but three had annual sales of $10,000 or more from 1965 through 1967, and none had sales of less than $2,500 for these years.

Table 22 in the appendix indicates the number of farms (based on the present definition) and the value of products sold that would be eliminated with value-of-sales cutoffs of $2,500, $5,000, and $10,000, by State, based on the 1964 Census of Agriculture. A $5,000 cutoff would drop 56 percent of the farms and 8.2 percent of sales; a $10,000 cutoff would drop 72 percent of the farms and 18.5 percent of sales. The proposed definition probably would eliminate percentages within these limits and could well turn out to have the same effect as a direct $5,000 cutoff. The number of farms that would be eliminated, based on a more detailed sales classification, is shown in table 23. A $2,500 cutoff would eliminate more than 10 percent of sales in only three States--West Virginia, Kentucky, and Tennessee. Agricultural production in these States is small as a percentage of the U.S. total.

Farm firms--farm firms (individuals or partnerships) would include those filing a schedule F for income tax purposes or reporting income from agricultural operations on schedule C, plus farm corporations (as defined by the Internal Revenue Service (IRS)), plus nonfarm corporations known to operate farms.

Names of the latter could be obtained from Agricultural Stabilization and Conservation Service (ASCS) offices or from other sources and checked to make sure that they were not included by IRS as farm corporations. Users of custom feedlots would be farm firms if they filed a schedule F. A corporate conglomerate would be counted as a single firm. Farms of a reasonable size operated under share rent would be counted twice as firms--once for the operator and once for the landlord.

The number of farm firms would be of interest as a measure of how many individuals, partnerships, or corporations had a direct financial interest in agriculture. All persons and partnerships having significant agricultural operations would file a schedule F or C in order to qualify for business deductions. Some operations of persons filing these schedules would not qualify as productive farms.

The number of farms and the number of farm firms should be considered as two distinct series. There would be no simple way to reconcile them.

Farm service firms--Farm service firms are those from which farmers receive services that, prior to about 1950, were chiefly performed by farmers themselves. Such firms would include those providing custom services to farmers for a fee or in connection with the sale of input items. Custom operators would differ from farmers in that they would not operate on a fixed land base but instead would move from farm to farm as their services were needed. Feedmixers should be included in this group. Firms providing bookkeeping services, linear programing or other management decision aids, or specific hedging and selling recommendations tailored to an individual farm situation would be counted. Implement dealers or other input merchants who merely advise farmers on what to buy would not be included.

All of industry groups 0714 and 0719 and parts of 0715, 0729 and possibly 0731 would be included (see p. 22). Cattle feedlots would not be included, since they would be counted as farms in the proposed definition.

Some people believe, as I do, that part of the sharp increase in productivity of agricultural workers reflects the fact that a large part of the work formerly done by farmers now is done by service industries. Questionnaires should be designed for the farm service firms, with a view toward separating workers performing tasks once done by farmers from workers doing other things. Thus, a local fertilizer merchant might have two employees who deliver and apply fertilizer for farmers plus several retail salesmen, bookkeepers, and other employees. The first two employees would be listed in a special farmwork category. Likewise, a feedmixer would report those workers engaged in mixing and delivering feeds to farmers and feedlots. In fact, Census collected data on agricultural service firms in the 1969 Census of Agriculture, the first time they have done so.

Total man-hours of farmwork would be reported by USDA to include that done by farmworkers in farm service firms, plus work done by farmworkers on productive farms. Total output on productive farms, divided by this number of man-hours, would give a meaningful index of agricultural productivity, even though more and more services are being performed by custom operators and management firms.

Manufacturers of agricultural products--Two types of establishments would be included among manufacturers of agricultural products: (a) land-based agricultural operations for which day-to-day work is supervised as in a factory--namely, with certain operations supervised by one hired employee and other operations supervised by other hired employees--and (b) agricultural operations,

regardless of how supervised, that are performed completely within a light- or temperature-controlled structure. Examples of type (b) currently in existence would be greenhouses, mushroom production, caged poultry production, and feeder pig operations in which the pigs are sold immediately after weaning.

In some areas, cattle feedlots are maintained in roofed structures open on one side. Based on the proposed definitions, the open side would qualify them as farms, along with conventional feedlots. Cattle feedlots are a borderline case, however.

As a Cochrane-type agriculture emerged, the percentage of agricultural production accounted for by manufacturers of agricultural products would increase. If this form of production became dominant, there would be little reason to treat agriculture differently from industrial production groups, and much of the relevant data now collected and published by USDA could be dropped.

Sources of Agricultural Production

The key to this proposed classification is a decision to permit a substantial number of places engaged in agricultural production not to be called farms. By so doing, farms as such can be described in a familiar way, and if legislators so desire, programs can be designed to assist a reasonably homogeneous group of farmers. Separate programs can be aimed at the rural poor. Operators of agricultural factories will probably be left to shift for themselves, possibly under some kind of regulation to prevent any one of them from becoming too large. Legislative programs can be designed in a more intelligent way when it is known how many places are involved in each group and what percentage of total agricultural production is contributed by the group.

Under this proposal, agricultural production would come from the following groups:

(a) Urban households
(b) Rural households not called farms because their agricultural sales are too small
(c) Productive farms
(d) Manufacturers of agricultural products

In addition, some employees in farm service firms would be doing agricultural work.

A rough calculation indicates that, for 1964, about 8 percent of all cash receipts came from group (b), 77 percent from group (c), and 14 percent from group (d). In these computations, I assumed 1 percent from group (a). 3/

Information on these various groups could be obtained in the following ways:

Census years--It would be hoped that Census would be willing to include in the Population Census questions like those given on pages 2-3. This would give a total value of sales for group (b) (page 5) from question (b) (page 2). Group (c) and the smaller firms in group (d) would be covered by the Census of Agriculture. The larger firms in group (d) would be in a survey comparable to the Census of Manufactures. Data on farm service firms might be obtained from census surveys of retail and wholesale trade.

Noncensus years--Details concerning production of the various crop and livestock products, by group, could be obtained from

3/ Group (b) was assumed to equal the proportion of census farms with sales of less than $5,000 (see table 22). Group (d) was assumed to equal the following percentages of cash receipts for 1964 as reported in the Farm Income Situation (91, table 11H, pp. 54-55): Hogs, 2 percent; dairy products, 1 percent; eggs, 50 percent; broilers and farm chickens, 75 percent; fruits and tree nuts, 5 percent; vegetables, 10 percent; and an "other" group including greenhouse items, 10 percent. Group (c) was taken as a residual.

area surveys. Special surveys to cover farm service firms would need to be designed.

All years--The Farm Income Branch of the Economic Research Service (ERS) would continue its estimates of total value of agricultural marketings (gross farm income) and of cash receipts by individual items. Total sales generated by groups would be obtained by integrating this information with that obtained from other sources as outlined above.

Classification of Rural and Urban Households

Rural households could be classified as follows:

(a) Farmers
(b) Nonfarmers who sold some agricultural products
(c) Nonfarmers who sold no agricultural products

In addition, some urban residents would be farmers, and some urban nonfarmers would sell some agricultural products. Information on these groups would be obtained if the Population Census included the questions proposed.

In census years, it would be highly desirable to obtain information similar to that developed by Riensel (69, see page 53 of this study) on sources of income for all persons or families who indicated that part of their income came from the agricultural sector. Interpolations between noncensus years could be developed from IRS records.

Value of Agricultural Production

Since a substantial part of agricultural production would be from nonfarm sources under the proposed definitions, what now is called gross farm income should be designated "value of agricultural production" and what now is called net farm income should be called value added by the farm sector. If figures are desired on a per farm basis, then the part of these values estimated to come from nonfarm sources should be deducted. The remainder could be expressed on a "per farm" or "per farm firm" basis and have some kind of statistical meaning.

Information by Class or Type of Farm

Size of business will probably continue to increase for most types of farms. I propose that funds now devoted to preparing estimates of gross and net farm income, by economic class, be shifted to permit additional work on gross and net income and related statistics for specified types of farms of a typical size. Information on gross and net farm income by economic class is difficult to interpret because of shifts of particular types of farms from class to class as their size increases. Information on economic classes for specific types of farms, as given by the Census of Agriculture, is highly useful and should be continued if possible. Time series data for individual types of farms of typical size and for aggregations of specified types also are of value.

Prices Received and Paid by Farmers

Shaffer (76, p. 7) said,

"The public researcher should put emphasis on those activities which stand to significantly improve the coordination of the economy and which cannot be done economically by private firms."

Currently, a major reason for publishing data on prices received and paid by farmers is that they are needed for parity computations,

which are required by law. If new legislation is enacted, under which support prices are set at an average of preceding market prices, detailed estimates of farm income, by State, and of parity prices and prices received by farmers may be superfluous. Under these circumstances, funds used to prepare these estimates might better be used to provide more accurate estimates and forecasts of production, stocks, and disappearance and more current information on certain aspects of foreign trade.

Farmers and industrial and trade groups are chiefly interested in prices for specific grades at specific markets on a daily basis. Some price data probably would continue to be needed in connection with the estimates of value of agricultural production, but these could be less detailed than those now published in Agricultural Prices.

Publication of data for which there is little or no statistical basis and for which industry cooperation for improvement is generally lacking, such as prices of live broilers and certain vegetables and fruits, should be discontinued.

I. THE EMERGING COMMERCIALIZATION OF AGRICULTURE

In 1963, Ducoff (16, p. 24) said,

"The distinctions in occupational and living patterns between the rural and urban population and between the rural farm and rural nonfarm segments are rapidly diminishing."

Two years later, Breimyer (9, p. 51) commented,

"Generation by generation the differences between farmers and city people, and between rural life and urban life, gradually faded. They have not disappeared yet, but when compared with the onetime sharp division they are now dim."

He added (p. 61),

"Agriculture today is itself taking on many of the technological and managerial characteristics of industry."

In 1967, Bishop (7, p. 1001 and 1006-1007), in a presidential address before the American Farm Economic Association, put it more strongly. He said,

"There is a growing view that from a sociological as well as an economic standpoint, what is urban and rural can no longer be distinguished. . . .

"The emerging new structure presents a pattern of interdependent economic and social relationships. In this context, the problems of rural communities and urban centers are inextricably related and the rural-urban dichotomy loses significance.

"Clearly, the physiocratic approach is dead. The farm and city dichotomy is no longer useful. Attempts to preserve it are futile."

More recently, Upchurch said,

"When most rural people were farmers, we could more easily equate farm product prices with rural welfare. But when few rural people farm, and when farming is but one stage in a highly complex industry reaching into both rural and urban areas, our traditional views of farming and rural life must change."4/

In the concluding remarks at a 1967 conference on Implications of Changes (Structural and Market) on Farm Management and Marketing Research, Stout (80, p. 369) said,

"Perhaps we have been presiding over the liquidation of cherished traditions and useless illusions about a changing empire. For the sake of our effectiveness in confronting the problems of the future, let us hope so."

Various aspects of the change in rural life will be explored in subsequent sections.

4/ M. L. Upchurch. Dynamics of Commercial Agriculture, p. 8. Talk at the Annual Agricultural Outlook Conference, Washington, D. C., February 18, 1969.

Merging of Farming With Other Parts of the Food and Fiber Sectors

Irwin (45, p. 5) said,

"Agriculture and farming were once virtual synonyms. In current usage, agriculture has evolved into a much broader term. It denotes the sector including the farm output and product industries, as well as farming itself. . . . Identifying a uniform general set of functions to be called the farming sector, or even defining a particular set for a specific study, is becoming increasingly difficult."

In the same study (pp. 6-7), he developed five alternative concepts of farming:

"1. The physical site concept used in aggregate statistics. . . . The 'agriculture sector' is a physical plant producing a category of food and fiber goods and services, irrespective of the ownership and income claims against the tangible physical assets and financial assets used in production. . . .

"2. By whom has decision control. Farm operators ... (include) all persons bringing together resource services for the production of so-called 'agricultural commodities,' regardless of physical boundaries or resource ownership. . . . This would suggest that farming is no longer defined in terms of a particular set of activities, but instead in terms of the group making certain decisions."

(This concept is considered in detail in section XII of this report.)

"3. By income or resource ownership groupings. An alternative useful for some purposes is to consider farming as an occupational classification including all individuals obtaining a majority of their incomes from the business activity of producing agricultural products or as a grouping by resource ownership.

"4. By geographic, income or product class. . . . Many classifications are possible. . . . Part of our task is to identify these important categories of questions and the optimum amount of subclassification.

"5. The industry approach--bypassing a definition of farming (Broilers, for example.) . . . As interrelationships with other industries grow, the concept of treating various commodity producers as an aggregate called farms becomes less analytically useful and the commodity approach more so."

Kohls (51, pp. 332-333) gave further emphasis to these interrelationships. He said,

"First, I do not believe that issues relating to the farm can any longer safely be segmented out from the business context of the total system in which the farm operates. I suggest that the pertinent arena is food and fiber policy for the nation--not narrowly defined farm policy. Secondly, I do not believe the 'levels of incomes of farmers' any longer adequately describes the concerns and problems of this food and fiber industry."

Table 1, taken from Arthur, Goldberg, and Bird (3, table 3, p. 22), indicates the relative importance of the various parts of the agribusiness complex in terms of total employment. Part of the decrease in employment on the farm reflects increased services by off-farm suppliers of work formerly done by farmers. The increased employment in food and fiber processing in part reflects the performance of work formerly done in the home. The decreasing importance of the whole complex as a proportion of the U.S. work force reflects increased efficiency and the fact that consumption of food and fiber per capita is fairly constant in our society even when use of many other goods and services is in an uptrend.

Questions have been raised particularly as to whether modern livestock enter-

Table 1.--Employment in U. S. agribusiness, by type of firm, 1947 and 1966

Type of firm	People		1966 as a percentage of 1947
	1947	1966	
	Millions		Percent
Farm supply	5.0	5.7	114
Farm	10.0	5.6	56
Food and fiber processing and distributing	9.5	12.0	126
Total agribusiness	24.5	23.3	95
Total U.S. work force	60.0	76.6	128
	Percent		
Agribusiness as a percent of total	40.8	30.4	---

prises are a part of agriculture. For example, Breimyer (9, p. 89) said,

"Transport and trade in concentrate feedstuffs has grown to the point that commercial feeding of livestock and poultry is taking on a character even more distinct from crop-producing agriculture. Questions may be raised as to whether it is any longer 'agriculture.'"

Likewise, Lee said,

"Except for range livestock and cow-calf operations, most livestock activities no longer need to be extensively land based. Broiler and egg production, beef feedlots, pig parlors, and specialized dairy operations are cases in point. If these production enterprises are not land based but require the use of large amounts of capital and skilled management, they lose their farm image and become less and less distinguishable from nonfarm activities." 5/

Intermingling of Farm and Nonfarm Income

In a detailed study of the sources of farm and off-farm income of person engaged in farming, Reinsel (69, pp. 1-2) said,

"In the past it was reasonable to believe that farmers were people who lived on farms, tilled the soil with their labor and equipment, and cared for their own farm animals. ... Farm production units were taken to correspond with family income-earning and spending units. ... Farms and farmers are no longer as easily identifiable as they once were. ... Individuals often receive income from farming although they neither live on a farm nor participate directly in farming operations. ... Farm operators may have lower farm earnings than indicated by the income of the farm they operate because landlords or others may share this income. Also, some of those with low farm incomes may have little need for direct farm support because of substantial off-farm incomes."

He continued (p. 26):

"A picture emerges of a farm economy in which most individuals receive some off-farm income and many receive most of their income

5/ John E. Lee, Jr., Resource Ownership and Use-Rights in Agriculture, p. 12. Paper presented at a conference on The Structure of Southern Farms of the Future, Auburn University, Montgomery, Ala. May 1-2, 1968.

from nonfarm sources. Several individuals or families may share the income from a farm. ...

"It is unrealistic to tie farm income policies to the income level or income-producing capacity of farm production units alone. Public policies aimed at increasing human welfare need to be divorced from the earnings of farms and related directly to the income situation of individuals."

A recent updated USDA mimeographed report stated,

"Currently an estimated one-fourth of farm incomes goes to farm operators and hired workers who do not live on farms. Conversely, people who live on farms receive nearly half as much income from nonfarm as from farm sources." 6/

The Growing Importance of Corporations

Much publicity has been given to the importance of corporations in agriculture--see, for example, (94) and various publications of the National Farmers Union, particularly (68). However, as pointed out by Upchurch,

"We have learned that in the 47 States we have about 11,000 farms operated by corporations. Most of these, about 7,500, are family corporations and an additional 1,300 are individual corporations. Only about 2,200 are classed as other than family and individual firms.

"Half of the individual corporations and two-thirds of the family corporations are engaged in farming only. More than 40 percent of the 'other' corporations are classed as 'farming only' in their business interests. . . .

"Very few of these corporations had really big farming interests. Eight percent are reported to have grossed more than $500,000 from farming. A fifth of them, at the other end, grossed less than $20,000. Oddly enough, 6 percent of the family corporations were in the half-million dollar plus class.

"We know from this study that nearly half of these corporations were organized before 1960. We cannot tell for sure from these data whether corporations in farming is a growing characteristic for we have no comparable data for earlier years. We presume that it is."

He continued:

"Our efforts so far tell us that the corporate form of business organization, especially the large conglomerate public corporation, has not made large inroads on our farming at the present time. One would expect that, as the capital required for modern farming continues to increase, farmers themselves may increasingly adopt the corporate form of business to facilitate accumulation of capital, to limit liability, to ease intergeneration transfer of assets, and for other purposes.

"There is no reason to believe from our skimpy studies so far that the huge public corporation has any unique advantages in farming over other forms of business. Some agribusiness corporations engage in farm production and some farm corporations engage in agri-business to facilitate integration in the input-farm-product market complex. One would expect innovative businessmen in farming and out to exploit these opportunities when they can to their advantage.

"A footnote should be added here. We should avoid confusing the corporate form of business with size of business. Although farms operated by corporations tend to average larger than all farms, the data do not support the association of 'big' and 'corporate' often found in agricultural literature." 7/

6/ Series: Farm Income Estimates, p. 7.

7/ Op. cit., pp. 6-7.

Further material relating to corporations and large-scale farming is developed in section X.

Increased Use of Nonfarm Capital in Agriculture

In 1963, Higbee (38, pp. 4-5) said:

"It is hard for the nation to face up to the fact that throughout the economy it is more profitable to employ capital than to employ people. . . . On the farm this means that a family which is long on labor but short on capital has become obsolete as a production unit.

He added (p. 8),

"Farming has become a high-speed business rather than a philosophy or a way of life."

In 1967, Hillman (40, p. 1061) said,

"The flow of capital and new technology into farming will continue at an increasing pace and will further substitute for land and labor. The transformation of farming into larger and more commercialized units will continue, either with or without farm policies of the present kinds. These developments, neither caused nor offset by our current agricultural policies, stem from the nation's economic growth, which is encouraging the rapid transformation of farming and industry alike."

More recently, Daly said,

"The successful commercial farmer today is an intelligent, well-informed businessman. We have very few 'subsistence farmers,' but many rural residences that qualify as farms." 8/

As agriculture becomes more commercialized, (a) the need for outside capital and (b) the opportunities for investment in agriculture by outsiders both increase. These aspects are discussed in more detail in sections X and XII.

Commercial Versus Nonproductive Farms

Recently, Hillman, Executive Director of the National Advisory Commission on Food and Fiber, in a summary of the commission's final report (40, p. 1068), said,

"Average income per farm is still being used to evaluate returns from farming and to justify farm programs. This should not be. This average includes more than 1.3 million part-time and retirement farms that have sales less than $2,500 per year and an average net income of only about $1,000. It also includes a large number of low-production farms whose gross sales are too small to provide an adequate farm operator income at any realistic price level for farm commodities.

"Averages also include net incomes from large commercial farms. If income from off-farm sources is added to farm income, the average income of those farms in the $40,000 and above gross sale category was $23,813 in 1965. The farm income figures also leave out the important question of wealth--and this is particularly important, since our farm economy is heavily weighted in favor of increasing capital-gains rather than current income. The net worth of farm-operator families is about twice as high as that of non-farm families."

He continued (pp. 1069-70):

"Finally, there is one area in which we all can be of service to the policy question in U.S. agriculture. I refer to the danger of generalizing about an agriculture that is so diverse. . . . American agriculture is not a monolithic aggregation about which one can generalize very easily. It is composed of hundreds of segments--geographical, economic, social, and otherwise--which should be studied carefully before policy decisions are specified."

8/ Rex F. Daly. The Future of Food and Farming, p. 3. Talk at the Maryland Rotary Club, Frederick, Nov. 20, 1968.

In 1963, Higbee (38, p. 13) said,

"No reasonable headway can be made in reshaping national policies toward agriculture until it is recognized that the players at the top and the players at the bottom are not in the same league and the spread between them is getting wider."

He added (pp. 46-47),

"If children's lemonade stands were included in a census of retail food outlets, the whole grocery business might look so sick that even A & P would qualify for government aid on the basis of averaged trade data."

Statistical Problems Resulting From Changes in Agriculture

In 1966, Simpson (77, p. 1675), Secretary of the U.S. Crop Reporting Board, wrote,

"I dare say that a decade ago we may have passed the time when we could expect to take a complete census of agriculture by interview procedures in a reasonable time span. As specialization in agriculture continues to increase, the task of data collection grows more difficult and methods must change. . . .

"We already have situations where we must obtain a reply to the survey questionnaire from all extremely large operators. For example, less than 2 percent of the sheep producers have 50 percent of the sheep, less than 1/2 of 1 percent of the poultry producers have one-third of the poultry, while only about 1,450 out of 220,000 cattle feeders have 35 percent of the cattle on feed. . . .

"Simply measuring agricultural output is not sufficient. Much more information about the farm as an enterprise and how much such enterprises are changing is wanted."

He added (p. 1677),

"There will be an increased need to measure food production as a total process. If this proves to be so, we will also have to develop list frames of agribusiness enterprises that mesh into the total food production process."

On a trip to Washington, in connection with this study, I was told by a member of the Crop Reporting Board staff that considerable progress has been made in developing such lists.

Taeuber (82, p. 1671) proposed a solution to the problem of specialization, but so far his suggestion has not been adopted by Census:

"If schedules can be tailored to the type of farm, there might be some reduction in the apparent length...for most farmers. It would make possible the development of questionnaires which would more nearly do justice to the needs of specialized farming and might permit more adequate attention to changing forms of management and control of farm operations."

Census has conducted two pretests using type-of-farm report forms and is including sizable type-of-form surveys as supplements to the 1969 Census of Agriculture. Results of these surveys will be carefully considered in planning for the 1974 Census.

Taeuber added (p. 1668),

"With the increased amount of information flowing to a number of different agencies, there is an increased obligation to make full and effective use of these other sources of information. The rapid growth of the use of electronic computers facilitates the use of data from a number of sources and reinforces the obligation to use them. . . . There must be a continuing review to see if the resources that are available for statistical programs might be used more effectively than is currently the case. Recognition must also be given to the growing resistance of the public to what appears to be a duplication of inquiries, and to the fact that needs for statistical intelligence

continue to grow at a much more rapid rate than the resources available to meet these needs."

Studies currently are underway in USDA to determine the extent to which information now collected by IRS and the Social Security Administration (SSA) can be used to replace or supplement information now obtained by direct surveys. Material relating to this point is given in subsequent sections of this report (see particularly sections VII, IX, and X).

Particularly in the field of pricing, vertical integration and contracting have resulted in a situation where data formerly collected by USDA cover circumstances that no longer exist. For example, live broilers no longer change ownership when they are ready for slaughter; they have been owned all along by the poultry processor and have been raised under contract. Yet, within present concepts of farm income, their value at the local market is counted as part of gross farm income. Likewise, prices received by vegetable and fruit growers are adjusted for various services supplied by the contracting processor. In some cases, the "grower" furnishes almost nothing except his land. USDA has attempted to maintain price series based on a uniform batch of processor services but has found this to be an almost impossible task. These points are discussed in somewhat more detail in section XI.

Trelogan (83, p. 79) presented a comprehensive review of the effects of cybernetics on agriculture. He said,

"Acquisition of data for crop and livestock estimates depended for literally a century on the mail questionnaire. ... The method was founded on the proposition that farms in the United States were sufficiently alike that a sample consisting of many farmers distributed throughout all parts of the country could be considered representative of all farms. The foundations of this method, which was reasonably sound when we had twice as many, and more diversified, farms, began to be eroded some three decades ago along with trends toward fewer, larger, more specialized farms. Today a large sample can no longer be regarded as a representative sample. Advances in statistical technology, particularly in probability sampling, have pointed the way toward the use of even smaller samples properly selected to obtain representative estimates."

He then discussed possible longer range developments (pp. 80-81):

"Today we have in a number of States significant numbers of farmer reporting management data into central points for electronic analyses. . . . It takes little stretch of the imagination to visualize how these computer analyses can be applied to horizontally integrated farming operations to overcome space and time limitations. . . .Where these impediments are less severe and other difficulties have been successfully overcome, as in huge cattle feeding lots, broiler chicken plants, and egg laying houses, the introduction of automation and cybernation is both startling and commonplace. But even in these instances the possibilities are far from being fully exploited.

"Immediate opportunities awaiting exploitation abound as vertical integration of farming operations spreads into factor supply and product processing and distribution. One can visualize data intensively collected on farms, utilizing methods already employed for crop estimating and transmitted over radio equipment already installed in farm field trucks.

"The data would serve as computer inputs that can be translated and relayed to such diverse outlets as insecticide and herbicide suppliers, fertilizer applicators, aerial spraying outfits, and harvesting crews prepared to respond in accordance with contractual arrangements worked out well in advance of actual needs. Financial requirements likewise can be anticipated and geared to computer outputs, transmitted automatically to banking institutions which are prepared to provide

credit in the amounts and at times needed. Field harvesters and packers can be alerted and scheduled on the basis of computer outputs that can at the same time give fairly precise orders for packaging supplies, transportation, refrigeration, grading and storage services. . . .

"Whole groups of the next generation of agriculturists are going to gain livelihoods from applications of cybernetics to agriculture viewed in the broad. Farms and farmers will constitute subsets in the analyses. That consequence may not be particularly disturbing. The most frightening aspects of cybernation applied to farming stem from institutional, sociological, and conceptual impacts that appear likely to ensue. In the current agricultural statistics program of the Statistical Reporting Service increased difficulties are encountered in ascertaining what is a farm, what workers should be properly classified as either farm or agricultural labor, who can or will furnish reliable data on integrated farming operations, what can be reported as a valid price received by a 'farmer' enveloped in an integrated enterprise, where can one ascertain prices paid in units and terms comparable with other farmers, how can contractual terms be converted to standardized prices suitable for aggregation and averaging. Identities of even the most basic elements underlying our reporting system will have to be reviewed and redefined. . . .

"A lot of this adaptation of human intellectual concepts to oncoming technology is overdue, the intensity of need is growing at accelerating rates, and the abrasive interfaces with deep-seated values and beliefs are proliferating.

"Some research, academic, and educational institutions serving agriculture have their work cut out for them. Conferences, seminars, public dialog leading to the reformulation of economic theories, will bring these problems to the surface and expedite work on them. There will be a need to uncover genius in many quarters not only to capitalize on Dr. Wiener's genius, but also to clean up the debris left in his wake."

This report provides some tentative proposals regarding reformulation of definitional concepts and discusses many of the statistical problems brought about by the changes in commercial agriculture mentioned here.

II. HISTORIC DEFINITIONS OF FARMS

Early History of Farming in the United States

For the past decade or more, U.S. agriculture has been undergoing rapid change in many aspects. One should remember that in the past we have gone through other periods of equally revolutionary change.

Edwards (19) wrote a brief history of the first 300 years of American agriculture. I quote a few highlights here (pp. 174, 228-231, 236):

"The earliest efforts of the pioneering English colonists to derive a livelihood from the soil can hardly be called agriculture. In general their activities resembled those of primitive tribes in the hunting or collection stage of development. . . .

"It was the union of American Indian and European farming that produced the beginnings of American agriculture and provided the essential basis for its ultimate development. . . .

"Through countless centuries agriculture was carried on by hand labor, with only a few simple tools supplemented to a slight extent by animal power. This basic pattern continued practically unchanged down to 1830. In the decades from 1830 to 1860 were crowded inventions and improvements that revolutionized agricultural developments. . . .

"The second stage of development, roughly from 1860 to 1910, was marked by the general displacement of men by horses as the motive power for agricultural implements. . . .

"Just prior to the outbreak of the first World War farm equipment entered still another stage of development, with the substitution of mechanical power for horse power. . . .

"A distinctive feature of American farm life during the two and a half centuries following the settlement of Jamestown was economic self-sufficiency. Each farm produced practically everything that it consumed. . . . The transfer of manufacturing from the farm to the factory is the most significant aspect of the transition from self-sufficiency to commercial agriculture. It was, furthermore, the central fact of both the agricultural and industrial revolutions. This migration of industries from the farm to the factory resulted in vast changes in the technical processes of manufacturing; in greatly increased urban demands for agricultural commodities due to the growth of large urban centers; and in a tendency toward intensified specialization in agriculture."

These vast changes in the nature of farming required few changes in the nature of statistical data, but did increase the demand for them. Virtually no data were collected in the early stages, and in the later stages,

most farms consistently could be characterized as family-operated firms that provided most of the labor and capital required for agricultural production.

Census Definitions of Farms, 1850 to 1969

Hathaway and Waldo (33, pp. 61-62) provided a good summary of the basic concepts involved in the Census definitions of a farm. They said,

"The procedure adopted in the Census of Agriculture is first to define 'a farm' and then to designate one person per farm as 'the farm operator.' The number of farms and the number of farm operators are thus regarded as identical. Only one person is enumerated as a farm operator in the case of farm partnerships. Moreover, the designation 'farm operator' is made without regard to place of residence or to the primary occupation of the individual.

"The Census definition of a farm is purposely designed so as to include nearly all agricultural production in the United States. . . .

"All land operated under the control of a single individual or partnership was counted as one farm. . . .

"Census includes a large number of persons who operate farms of a very modest scale and whose primary occupations are outside agriculture."

One point that they made is worth further emphasis. During the period when the Agricultural Reporting Service relied chiefly on mail surveys conducted in cooperation with rural mail carriers, it was almost essential that the Census of Agriculture give a complete count of agricultural operations every 5 years. Now that more reliance is placed on scientifically designed area surveys, less need exists for a complete count by Census. Of course, these surveys use Census data to provide a frame for their sample designs.

Hurley (41, p. 616) gave some further features of the Census definition. He said,

"The essential features of the Census farm definition have been: (1) the land should be under control of one person and (2) should be used for, or connected with, agricultural operations.

"The requirement that the tracts of land be operated by one person has resulted in the counting of places operated by tenants, sharecroppers, and managers as separate farms. The requirement that all tracts operated by one person be considered one farm resulted in counting as one farm places comprising owned land and rented land, and tracts of land operated by one person but widely separated as to location. . . .

"Agricultural operations have been considered to include the growing of crops, the raising of domestic animals, poultry, and bees, and the production of other agricultural products, including the production of livestock on public lands and open ranges not under the exclusive control of a single individual."

There are some seeming inconsistencies in Census definitions with respect to modern operational concepts. For example, custom feedlots are farms according to Census, but hatcheries are not. However, both are agricultural services, based on the Standard Industrial Classification Manual (84).

Reporting of each place operated by a sharecropper as a "farm" has had important effects on published data, which probably have been frequently misunderstood by the general public. In 1948, Bachman, Ellicksen, Goodsell, and Hurley (4, p. 686) commented,

"The reporting of each cropper unit as a separate farm by the Census is also important in explaining the relatively large numbers of small commercial-family farms and small scale farms in the South. . . . The number of (such) . . . farms might have been reduced 25 to 35 percent had the count been based on the number of management units in these States."

Although sharecropping is less important now than in the past, its presence may still be a major factor in accounting for the predominance of very small farms in many of the southern States.

In 1965, Nikolitch (62, p. 2) pointed out,

"The disappearance of nominal farms was mainly concentrated in the South where sharecropper units constituted one-quarter of all the disappearing farms in the United States."

Tables 2 and 3 are adapted from Hurley (41). They have been updated to include criteria for the 1964 and 1969 Censuses of Agriculture. Census definitions normally have used one set of criteria for farms that have a specified minimum acreage (see table 3) and a second set of criteria for farms of less acreage (see table 2). Instead, an elaborate set of criteria were used to permit inclusion of farms that because of crop failure, new plantings, or placing of crops under loan had little or no sales. Places meeting any one of the many criteria qualify as farms.

The effect of the change in definition beginning with the 1964 Census was tabulated by Census and published in the introduction to the published reports for that census (87, pp. XIX-XX). They said,

"The use of specified criteria resulted in the counting of approximately 166,000 places as farms in 1964 that did not meet the published criteria for a census farm (i.e., the 1959

Table 2.--Minimum criteria for census farms and number of farms with acreage of less than a specified figure, census years

Census year and acreage	Minimum value of agricultural products--Produced	Minimum value of agricultural products--Sold	Number of farms included
	- - Dollars - -		Thousands
Less than 3 acres:			
1850	100	---	---
1860	100	---	---
1870	---	500	---
1880	---	500	4
1890	---	500	---
1900	1/	1/	41
1910	2/250	---	18
1920	2/250	---	20
1925	250	---	15
1930	250	---	43
1935	250	---	36
1940	250	---	36
1945	250	---	99
1950	---	150	77
1954	---	150	100
Less than 10 acres:			
1959	---	250	79
1964	3/	3/	60
1969	3/	3/	

1/ Required constant services of at least one person. 2/ Not applicable if farm required services of at least one person. 3/ 5 or more acres of crop failure, 100 or more chickens 4 months old or over, 10 or more hogs and pigs, 10 or more cattle and calves, four or more milk cows, 0.3 acre or more of tobacco harvested, 500 pounds or more of tobacco harvested, 2 acres or more of vegetables or berries harvested for sale, 2 or more acres in fruit orchards, or 5 or more acres of corn harvested if farm had no hogs and pigs.

Source: Adapted from (41, table 1, p. 617) for information prior to 1964.

Table 3.--Minimum criteria for census farms with at least a specified acreage, census years

Census year and acreage	Minimum value of agricultural products		Agricultural operations required
	Produced	Sold	
	- - - - - Dollars - - - - -		
3 acres or more:			
1850	100	---	---
1860	100	---	---
1870	---	---	Yes
1880	---	---	Yes
1890	---	---	Yes
1900	---	---	1/Yes
1910	---	---	Yes
1920	---	---	Yes
1925	---	---	Yes
1930	---	---	Yes
1935	---	---	Yes
1940	---	---	Yes
1945	2/150	---	3 or more acres of cropland or pastureland
1950	150	---	---
1954	150	---	---
10 acres or more:			
1959	---	50	---
1964	---	---	3/
1969	---	---	3/

1/ Required continuous services of at least one person. 2/ Applied only if farm had less than 3 acres of cropland and pasture. 3/ 2 or more acres of crop failure, 5 or more acres of land in summer fallow, 5 or more acres of cropland pasture or improved other pasture, 10 or more acres of other pasture, 50 or more chickens 4 months old or older, five or more hogs or pigs, five or more cattle and calves, two or more milk cows, 0.2 acre of tobacco, 100 or more pounds of tobacco harvested, 0.5 acre or more of vegetables or berries harvested for sale, 0.5 acre or more in orchards, 3 or more acres of hay, or 2 or more acres of corn if farm had no hogs or pigs.

Source: Adapted from (41, table 2, p. 617) for information prior to 1964.

definition). The 1964 Census included approximately 23,000 places having less than 10 acres but a value of farm products sold of less than $250 and approximately 143,000 places having 10 or more acres but a value of farm products sold of less than $50. Of these 166,000 places, approximately 31,000 were counted as farms in economic class VI and as miscellaneous farms, 85,000 as part-time farms, and 50,000 as part-retirement farms. Farm products were not sold from most of these places in 1964."

This report (87, p. XX) indicated that the change in definition between the 1954 and 1959 censuses resulted in 232,059 places that would have been included under the 1954 definition not being counted as farms in 1959.

Modification in Collection Methods for the 1969 Census of Agriculture

The definition of a farm was the same for the 1969 Census as for the 1964 census. However, farm schedules were mailed to persons who were believed to operate farms, instead of having an enumerator decide which schedule to use. These mailing lists were based on information from ASCS, IRS, and SSA. It is believed that few large farms will be missed.

Based on an area survey, Census (87, p. XXXIII) estimates that the following percentages of farms were missed in the specified size categories for the 1964 Census:

Acres in farm	Net error
	Percent
Less than 10	24.1
10-49	16.9
50-99	12.0
100-219	7.4
220 or more	6.9

In terms of acreage for the United States as a whole, Census estimates that 6.1 percent of all land in farms and 6.0 percent of cropland harvested was missed. The percentage missed for farms with sales of $10,000 or more is placed at 3.1 percent.

As pointed out by Earl Houseman of USDA, the composition of the farms missed could well change as a result of the shift to a mail enumeration, but it seems doubtful that the percentage of agricultural production included will drop. The likelihood of missing large farms should be small. However, small farms may be missed to a greater degree. More duplication may occur because operators and landlords both filed forms.

An innovation in the 1969 Census should provide useful additional information. The Census Bureau will give a type-of-farm classification. They plan to follow-up with a sample census for each type, with special questions for each.

The SRS "Point" System

A USDA mimeographed report described the point system as used by SRS. This system is used chiefly in connection with their count of farms and number of people residing on farms. In addition to using the Census criteria, SRS allots points based on livestock, crop, and pasture inventories.

"A specified number of points is allocated per acre or per head, and each point represents one dollar of imputed sales. Places which then meet the acreage and imputed sales criteria are counted as farms and their residents as farm people, regardless of whether the residents have sold or intend to sell anything." 9/

SRS criteria for the computing of points vary somewhat from State to State, depending on choices made by the State Statisticians. If reported sales are over $250, the point system is not used.

Places with no sales or very small sales also can qualify as farms under the Census definition. The chief difference between the Census definition and that of the SRS point system is that under the Census definition a place must have at least one operation larger than that needed to supply normal home consumption, whereas under the SRS definition, if a place carries on a number of agricultural operations no one of which would meet a Census criterion, the total may well meet the SRS criteria. Thus the Census definition is an "either-or" concept, whereas SRS adds up the points for each enterprise and then tests to see if the total reaches a minimum level.

9/ Review of Individual Statistical Series: Farm Population, pp. 9-10.

Table 4 shows the number of people assumed to be living on farms, based on the SRS June Enumerative Survey for the years indicated, in relation to estimates made by Census in their Current Population Survey. SRS and Census figures would be much closer if SRS did not use the point system.

As data in table 4 indicate, 14 percent of U.S. farms in 1967 qualified on points only. As pointed out in the mimeographed report mentioned before, the proportion varied among States, from over 30 percent in eight States to less than 5 percent in six States. The report further said,

"The farm population estimates for geographic areas bounce considerably from year to year in the SRS survey. The estimates have fluctuated to such an extent that at present we consider many of them unreliable for geographic detail." 10/

A committee has been established within USDA to review the point system to determine whether it is feasible for SRS to classify land in farms in a way comparable to that used by Census. However, Census has missed about 10 percent of small farms for the last three Censuses.

Calvin Beale, of USDA, has obtained data that pertain to the use of the point system by SRS. In these computations, "response" farms are those that would qualify based on the definition used in the 1959 Census of Agriculture. Supposedly, this definition still is in effect; the elaborate criteria adopted for the 1964 and 1969 censuses, similar to certain criteria used in earlier censuses, are designed to result in essentially the same number of farms as would have been obtained based on the 1959 definition. These criteria were adopted because many farmers who sell only a little do not have a good knowledge of how much they sold, but they do know how many acres or head of livestock they had. "Point" farms are those that would not qualify under the 1959 definition but do qualify under the SRS point definition.

Beale found that, based on the June Enumerative Survey, hundreds of thousands of individual farms were going into and out of agriculture every year. Owing to the downtrend in the total number of farms, a steady outmovement would have been expected. But an in-and-out movement of this magnitude is surprising. From year to year, an overlap

10/ Ibid., pp. 9-10.

Table 4.--Farm population as estimated from specified sources of data, 1965-67

Source	1965	1966	1967
	- - - - Thousands - - - -		
June Enumerative Survey:			
People who live on farms qualifying under 1959 Census definitions	12,966	11,736	10,566
People who live on places qualifying as farms only under the SRS point system	1,699	2,323	1,771
Total	14,665	14,059	12,337
Census-ERS, based on Current Population Survey	12,363	11,595	10,817

Source: Adapted from Census, Hurley (41) p. 9.

of approximately 80 percent occurs in this sample. These figures relate only to overlapping farms. Beale believes that these in-and-out farms basically never have been and never will be farms. They represent people who don't consider themselves farmers, who don't want to cooperate, but whose property is classified as a farm by the SRS point system.

An example from personal experience of a place that might have qualified temporarily as a farm under both the Census and the SRS definitions will illustrate the problem. A friend in New England worked as an electronics engineer, but he and his wife liked to garden; so, they bought a place with several acres in a Boston suburb. The place contained an apple orchard. For several years, most of the fruit fell to the ground and rotted. One year a man with a mechanical spray rig came by and offered to spray the trees and pick the fruit for half of the sale value. Since the rotting apples were a mess, the couple said, "Fine." So, for a few years, they became farmers. Then the man with the spray rig obtained so much work that he didn't want to bother with small places, so his relation with the couple ended, and again the fruit fell to the ground and rotted. So they ceased to be farmers.

In the 1967 June survey, of 1.5 million farms with sales less than $2,500, 409,000 were so defined through the SRS point system.

The following data for Missouri illustrate changes from 1866 to 1967. The State's total farm population was estimated at 510,000 in 1967, with 339,000 on response farms in both years.

Beale argued that the only true movement in and out of farming was among the 38,000 response farms that shifted to nonfarm (out) and the 47,000 nonfarm that shifted to response (in).

Classification in-- 1966	1967	Farm population
		Thou.
Response	Point	23
Response	Nonfarm	38
Point	Response	55
Point	Point	35
Point	Nonfarm	28
Nonfarm	Response	47
Nonfarm	Point	33

Standard Industrial Classification Manual Definition of Farms and Farm Services

For the sake of completeness, it appears desirable to give the full detail of establishments to be classified as 01--"Agricultural Production" or 07--"Agricultural Services and hunting and trapping." These are taken from (84).

"Reporting units to be classified are establishments, rather than legal entities.

"Each establishment is to be classified according to its major activity. . .

Major Group 01. - Agricultural Production
- 011 Field crops
- 012 Fruits, tree nuts, and vegetables
- 013 Livestock
- 014 General farms
- 019 Miscellaneous Agriculture
  - 0192 Horticultural specialties
  - 0193 Animal specialties (apiaries, dog farms, fox farms, horse farms, mink farms, and rabbit farms)
  - 0199 Agricultural production, n.e.c.

Major Group 07. - Agricultural Services and hunting and trapping
- 0712 Cotton ginning and compressing
- 0713 Grist mills, including custom flour mills

0714 Corn shelling, hay baling, and threshing services

0715 Contract sorting, grading and packing of fruits and vegetables for others.

(Establishments engaged solely in contract picking of these items are classified in Industry 0719, and those which pack and ship fruits and vegetables for their own accounts are classified in Wholesale Trade.)

0719 Agricultural services, n.e.c. (crop dusting, fruit picking, grain cleaning, harvesting and plowing, lime hauling and spreading, weed control, all on a contract or fee basis)

0722 Offices of veterinarians and animal hospitals (includes kennels and boarding)

0723 Poultry hatcheries

0729 Animal husbandry services, n.e.c. (Animal breeding and training, artificial insemination, catching live poultry with no hauling, cattle feed lot operation, cleaning poultry coops, testing dairy cows, dog grooming shops, earthworm hatcheries, honey straining (on a farm), livestock auctioning, pedigree record services, showing of animals, custom slaughtering, stockyards for fattening livestock, worms (except silk worms), raising and gathering.)

0731 Horticultural services

(Arborist services, Bermuda sprigging, independent cemetery upkeep, garden planning and maintenance, horticultural advisory or counseling service, landscape architects, contracting and gardening, lawn mowing or spraying service, mowing highway center strips and edges, tree plantings, pruning, bracing, spraying and surgery, tree trimming for public utility lines.)

0741 Hunting, trapping and game propagation."

Parts of major group 07 are not truly agricultural, and some would contend that parts of 0193 also were nonagricultural. However, a growing conviction exists among some people that labor employed by large segments of major group 07, or group 01, should be classified as "Agricultural." In fact, this classification has been recommended by the Budget Bureau.

Two other groups include activities that some would consider at least partly agricultural. These are:

"Major Group 20. - Food and kindred products (Beef, lamb, pork and veal produced in meat packing establishments)

Major Group 42. - Motor Freight Transportation and Warehousing (Catching and hauling live poultry on a contract or fee basis, farm to market hauling)."

Grove (31) pointed out that (84) changed major group 01 from "Commercial Farms" to "Agricultural Production." Major group 02, previously designated as "Noncommercial Farms," was deleted. He approved, as do I.

Kellogg (47, p. 21) noted,

"Field agriculture is becoming increasingly a materials-handling operation. ... Increasingly, a number of these functions are being performed by equipment made by a wide variety of industries whose production and shipment figures are listed under different classification numbers and names and are not included in farm machinery and equipment."

This is one more illustration of the problem of attempting to separate agricultural from nonagricultural segments of the economy.

ASCS Definitions

Barton, of USDA, mentioned that each individual acreage allotment makes up a farm as defined by ASCS, even though the land may

be rented out. Under this ASCS definition, the owner of the land is considered a farmer even though in the case of renting, the renter should be considered the operator.

Farm or Rural Definitions of Other Federal Agencies

Ratchford proposed the following definition of rural:

"A functional definition of rural is used for the purposes of this paper. Rural includes everything outside the standard metropolitan areas and the immediately adjacent bedroom communities which are tied in every manner to the metropolitan area." 11/

Let us see how well official definitions jibe with this concept.

Current Population Survey--Hathaway and Waldo (33, pp. 54-55) summarized the nature of the information available from the Current Population Survey. They said,

"Three types of statistics are available from the Current Population Survey (of 35,000 households distributed over the U.S.): (1) estimates of the total population and number of households classified by place of residence, (2) estimates of the current labor force classified by occupation and by industry of employment and class of worker, and (3) estimates of the number of individuals and households receiving income from specified sources. . . . (These data include the labor force status of all household members who are 14 years of age or older.) . . . Since 1956 . . . about 3,500 farm households have been included in the survey. . . .

"For Current Population Surveys, . . . the farm population included all persons living on farms as determined by their response to the question, 'Is this place on a farm (or ranch)?'. If respondents raised the question. enumerators were instructed to classify all places in rural areas consisting of house and garden only for which cash rent was paid as nonfarm residences."

Urban people essentially are those living in places of 2,500 or more inhabitants, plus those in the densely settled urban fringe around cities of 50,000 or more inhabitants. All persons living outside of these places are classified as rural residents.

Edwards and Beale indicated the following:

"Rural and urban definitions are too complex to apply on a current basis in sample surveys, so we do not have updated estimates of the rural population since the 1960 Census. (Current estimates with respect to U.S. totals, however, are available.) However, the Bureau of the Census has recently prepared population estimates for all countries for 1966, and by categorizing counties by their degree of rurality at the beginning of the decade it is possible to form some judgements about the recent course of population in areas that are entirely or primarily rural." 12/

Social Security--Reinsel (70, pp. 745-747) indicated the social security reporting requirements for persons with net earnings from farm self-employment. These are as follows: An individual must report if net farm profit is $400 or more; he may report under certain conditions if his gross is $600 or more. If a self-employed person has taxable wages for social security purposes and net earnings of $400 or more from self-employment and the amount of taxable wages exceeds the ceiling on taxable earnings, only taxable wages are reported. Ceilings were $4,200 for 1955-58,

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11/ C. B. Ratchford. Trends Affecting Rural Institutions, p. 1. Talk given at the Annual Agricultural Outlook Conference, Washington, D.C., Feb. 18, 1969.

12/ Clark Edwards and Calvin L. Beale. Rural Change in the 1960's p. 10. Talk given before the Annual Agricultural Outlook Conference, Washington, D.C. Feb. 18, 1969.

$4,800 for 1959-65, $6,600 for 1966-67, and $7,800 for 1968-69. Hence, some workers with self-employment income from farming would not report this to SSA. SSA estimated that in the late 1950's only about 50,000 farm operators were excluded for this reason. Based on data discussed on pages 53-54 the figure must have been higher in 1963. Based on 1963 income tax data, 448,000 individuals, excluding partners, reported net farm income of less than $400, and 1,094,000 reported net farm losses. None of these were required to report income from farming to SSA.

The gross farm income base was used by 560,000 people in 1956 and by 220,000 in 1966. Some persons use this optional method of calculating net earnings to obtain larger net earnings for social security purposes than would have been possible if the actual net earnings or net farm losses had been reported.

Landlords who "materially participate" must report self-employment earnings of $400 or more from farming. Whether a landlord receives net earnings from farm self-employment as a materially participating landlord depends on the nature of his agreement with the tenant.

In their analysis of social security data, Hathaway and Waldo (33, pp. 48-49) concluded,

"It appears that the sample of farm operators covered by the (Social Security) data approximates what are called commerical farm operators in the Census of Agriculture. Included, also, are some persons classified as 'participating landlords' under the 1956 legislation that permitted their income from farm ownership to be counted as farm self-employment earnings if they worked a given number of days on the farm, or if they participated significantly in the management of the farm. Indications are that about 200,000 such participating landlords were included in the early years of the program. It should be recognized that the counting of nonfarm wages and salaries prior to the inclusion of self-employment earnings will exclude from the sample individuals who may have been farm landlords but who had nonfarm wage earnings in excess of the coverage limit. . . . The lawyer or businessman who owned a farm typically would not be included as a participating landlord."

Internal Revenue--For tax years after 1969, only persons with gross incomes of $1,700 ($2,300 if over 65) must file returns. According to Reinsel (69, p. 3),

"Most farm operators file a return. . . . For some farms, there are two or more tax returns because landlords or informal partners share the income. Sharing income under landlord-tenant arrangements on low income farms increases the probability that no one will receive sufficient taxable income to file a return."

In note 4, he said,

"Farm partnerships file information returns, but no income tax is paid with these returns. Each member of the partnership transfers his share of the partnership income to his individual return and, when due, taxes are paid on the individual return. These individual returns from farm partners are not tabulated with other individual returns. Data for farm partnerships are from the partnership information return. Many informal farm partnerships do not file information returns; the partners file separately and are counted as individual proprietors."

In a journal paper, Reinsel (70, p. 745) reported the following: In 1959, 3.7 million individuals reported farm income to IRS as sole proprietors or farm partners, but only 2.2 million reported farm self-employment earnings for social security. The difference reflects reporting requirements.

Farm corporations, as defined by IRS, are those whose largest single source of receipts is agriculture. Many corporations who actively

farm, but whose income from farming is small relative to that from other sources, are omitted from this category.

Table 5 shows (a) the number of farms as estimated by USDA and (b) Federal farm income tax returns for 1965 by amount of farm receipts. In commenting on a similar table for 1962, Reinsel (69, p. 6) said,

"There were a few more farms than tax returns with receipts greater than $10,000. This is probably because taxpayers sometimes shared income from a farm, and each reported only his share of the receipts. Income sharing on larger farms also helps explain the slightly greater number of tax returns than farms in the class with receipts of $5,000 to $9,999. For example, the income of a farm with receipts of $18,000 might be shared by two individuals, each reporting $9,000 in receipts. Although no one would receive more than $10,000, two individuals would report receipts of $5,000 to $9,999."

"The 10 percent fewer tax returns than farms with receipts of less than $5,000 suggest that a return was not filed for some farms where no one received the minimum taxable income. Many of those not reporting probably had no income tax to pay. They may live mainly on social security or other nontaxable income. Apparently relatively few who receive the minimum gross taxable income fail to report. . . .

"The 1964 census data suggest that about 600,000 farm operators sold less than 600 dollars worth of farm products. Often these operators and others over 65 with less than $1,200 in farm receipts and little or no taxable off-farm income would not have been required to report income. About half the farms reported in the census with receipts of less than $600 were in 12 Appalachian, Southeastern and Delta States where there were the fewest tax returns in relation to the number of farms estimated by USDA."

Table 5.--Number of farms and Federal farm income tax returns, by amount of farm receipts, 1965

Farm receipts (value of sales)	Farm tax returns 1/		Farms 2/	
	Number	As percentage of total	Number	As percentage of total
	Thousands	Percent	Thousands	Percent
Less than $5,000	1,651	55.2	1,904	57.0
$5,000-9,999	525	17.5	502	15.0
10,000 or more	817	27.3	934	28.0
Total	3/2,993	100.0	3,340	100.0

1/ Internal Revenue Serv. (92, table 2.3, p. 39). 2/ Farm Income Situation, July 1968 (91, table 1D, p. 68). 3/ In addition, 71,000 firms filed returns but did not report size of receipts.

Source: Adapted from (69, table 1, p. 5). That table, however, was based on data for 1962.

III. GROUPINGS BY CLASS OR TYPE

Early Proposals

One of the earliest proposals concerning a specific classification was that of Benedict, Elliott, Tolley, and Taeuber (5, pp. 695-706) in 1944. They said,

"F.F. Elliott . . . had argued in 1928 that blanket recommendations for the 'average' farmer were too indefinite and likely to be misleading. Farmers needed to be divided into specific groups according to size of farms and type of farming areas so that economists could appraise the needs of typical groups and interpret the effect which changing economic conditions were likely to have upon them."

For many years, agricultural economists have recognized that practical solutions to problems of farmers must rest on knowledge of situations for individual types of farms rather than on averages for all farms. For example, Kirkendall (49, p. 17) noted that,

"What is particularly needed is a segregation of farms into a few simple, distinct, and clearly recognizable classes, and a tabulation for each of these classes of such data as are needed for recognizing and understanding them. . . . The criteria chosen should, so far as possible, distinguish farms on the basis of significant differences in interests, characteristics and behavior under varying conditions. . . .

"With the farms grouped this way, we could begin to think more effectively in terms of the problems and interests of the farmers operating each kind of farm, rather than in terms of some nebulous, intangible, 'average farm' that does not exist. Furthermore, Congress, the public nonfarm groups, and the farm organizations would be in a position to judge much more accurately than they now can the specific needs of these different farm groups and to develop programs to fit them in a much more realistic way than has been done in the past. . . .

"Publicists write and talk about problems of the farmers, and ways of meeting them, as though these six million farms were alike in their conditions, outlook, and the problems confronting them. National legislation affecting farms is passed and often applies more or less uniformly to all sections of the country. Such legislation may create added problems for some, give unwarranted advantages to others, and fail to create a well-ordered and realistic farm program. It is a blunderbuss approach aimed at a very mixed conglomeration of targets. . . .

"It is proposed that, for the purposes here considered, the farms of the United States be grouped into five main classes as follows:

1. Large-scale farms and plantations
2. Family-commercial farms
3. Part-time farms
4. Residential farms
5. Small-scale farms

"The basis of classification suggested is that of value of products sold, traded, or used, supplemented by certain other criteria as indicated in the discussion under each class. . . .

"Large-scale farms: Value of products of $10,000 or more at 1939 prices, and hired wage labor equal to at least 10 men for three months or 750 days in total.

"Plantations: Five or more croppers, share, standing, or cash tenants, or at least one cropper and enough wage hands to equal a total of five or more croppers or tenants. One hundred and fifty days labor hired would equal one cropper or tenant.

"Family-commercial farms: Production of $600 to less than $10,000 at 1939 prices.

"Part-time: Less than $600 and off-farm work by the operator of 100 days or more.

"Residential: Less than $600, operators 65 or over, and work off the farm of less than 100 days.

"Small-scale: Less than $600, operators under 65, off-farm work under 100 days."

Census Definitions by Class, 1945-69

As pointed out by Welsch and Moore (97, pp. 1555-1556), classification first was used in the 1945 Census of Agriculture, based on two criteria: (1) value of products sold or used and (2) value of land and buildings. For farms with product value of less than $1,200 and a land-building value of less than $8,000, off-farm work was added. Land and buildings were dropped in later censuses because only 2 percent of the farms fell in a different class when product value was used instead. Also, value of products sold became the classifying variable.

An economic classification developed jointly by Census and USDA was used for the first time in the 1950 Census of Agriculture and has been used in each succeeding census. The purpose of the classification, according to Census (85, p. 1546), was

"To segregate groups of farms that are somewhat alike in their characteristics and problems, to show the relative scale of operations and relative significance of different producing groups, and to make more useful and meaningful the statistics regarding the characteristics and organization of agricultural production."

As summarized by Nikolitch and McKee (63, pp. 1546-1547), the following groups were used:

Group I: Sales of $2,500 or more, plus other farms representing the main occupation and main livelihood for their operators, provided the operators were less than 65 years old. These farms were called "commercial."

Group II: Sales of less than $2,500 and serving primarily as rural residences for people in predominantly nonfarm occupations or for retired or semiretired persons. These farms were called "other." They also are referred to as part-time and part-retirement farms. Part-time farms, within this group, are those for which the operator is below 65 years of age and works off the farm for 100 or more days a year. Part-retirement farms, within this group, are those for which the operator is 65 years of age or older. In 1964, off-farm income of part-time farms accounted for 83 percent of their operator's total family income. For part-retirement farms, 61 percent of their total income came from off-farm sources, chiefly social security and other pensions.

Commercial farms are split into six classes, based on value of products sold, beginning with $50 to $2,500 and ending with $40,000 or more. The latter is subdivided

into $40,000 to $99,999 and $100,000 and over (the so-called large scale class).

No tabulation or separation is made for part-time or part-retirement farms if sales exceeded $2,500 a year.

Various criticisms have been made of the use of gross sales as a basis for classification. One was recognized in 1948 by Bachman, Ellicksen, Goodsell, and Hurley (4, p. 700). They said,

"A somewhat different problem arises from the fact that the value of sales represents the gross value of the product of the farm rather than value added. Because of the complex type of the problem it is probably impossible to handle it adequately in a census classification of farms."

Other criticisms of major importance were discussed by Welsch and Moore (97, pp. 1558-1559). They noted,

"A serious limitation of the present criteria lies in the influence of random or transistory price and yield fluctuatons when the output variable in terms of dollars of gross income is the primary variable of classification. . . .

"Another limitation of the present criteria is that sales of farm products do not represent the sole source of income to farms, let alone farmers. Consider first the farm as defined by the census. An additional source of income is government-program direct payments."

Despite these objections, no one has come up with better criteria within the needed framework of Census simplicity.

Hurley (42, pp. 1,568-1,569), writing in 1965, gave some additional information. He said,

"For the last four censuses, gross sales of all crops except vegetables have been obtained by multiplying reported or estimated quantities sold by average prices. The quantities sold are for the crop year. . . . For livestock and most livestock products, it has been considered necessary to obtain both quantity sold and dollar value of sales. The quantity sold has been under-reported for some farms because of failure of farmers to recall all sales. Also, the reported dollar value of all sales has often represented the net amount the farmer received after costs of marketing, etc., were deducted. . . .

"For several censuses, the Bureau of the Census has tabulated and published, for each economic class, expenditures for feed, livestock, custom work, etc., so that it is possible to adjust gross sales, but not economic class, by subtracting expenditures for selected purchased inputs."

Farm Income Situation Reports on Income by Class

Since 1964, data have been published regularly in the Farm Income Situation (91, see pp. 67-72) for the six income classes used by Census. Annual figures by class are given for (1) number of farms, (2) cash receipts, (3) realized gross farm income, (4) production expenses, (5) realized net income, and (6) off-farm income. Latest figures are based on the 1964 Census of Agriculture and the 1965 Sample Survey of Agriculture.

As pointed out in an undated mimeographed USDA statement,

"For this purpose, primary data are essential. This could mean either a regularly recurring comprehensive survey of farm income and expenditures with a large enough sample to permit reliable estimates by value of sales classes; or development of means for obtaining

tabulations of farm income and expense data by value of sales classes from the Internal Revenue Service." 13/

Exploratory studies of the possible use of IRS data are in progress.

Cost and Income Data by Major Types of Farms

In 1962, Koffsky (50, pp. 626-629) wrote,

"Our statistical system has tended to revolve around aggregates for agriculture as a whole, the average farm, and the average person living on farms. In a large sense, the single-minded concept of agriculture determined the statistical framework which described agriculture. . . . We have not always insisted that the estimates of farms and farm people be consistent statistically. Bringing them in line in the last Census brought such a violent downward adjustment in farm population as to raise the question whether in the past we knew with what we were dealing, statistically or conceptually.

"It was not until the late 1930's that some Costs and Return Series were established for 'typical family-operated commercial farms' in types of farming areas. These began to illustrate the diversity as related to types of farming areas which was hidden within the over-all totals and averages."

Further attempts in this direction were made, based on data from the 1940 Census of Agriculture.

"By cross relating these net income estimates with labor input data, this study brought into sharp focus the tremendous differentials in productivity and in net returns to labor and management which existed within the agricultural structure. . . .

"So we see that, though a conceptual framework which treats commercial and noncommercial farms separately adds appreciably to our analytical powers, it does not go far enough. It makes a great deal of difference whether the commercial farm is large or small, to put it in its simplest terms, and whether a noncommercial farm family can participate in, and has opportunities for, nonfarm employment."

Published data that deal with operations, costs, and returns for many types of farms in a sizable number of major farming regions cover the years from 1930 to date. A detailed discussion of these series was given in Goodsell (25, pp. 81-106). He said,

"Most of the series relate to commercial family-operated farms, but some of them cover larger and smaller operations when these operations are significant in certain areas. . . .

"The types of farms studied so far are the main types in each specified generalized type-of-farming area. . . . In most instances, from 60 to 90 percent of the farms in the area are of the type studied. . . .

"A commercial family-operated farm is one that is managed and operated largely with the family labor force and one that provides the family with its main form of employment and source of income. . . .

"Sharecroppers and other tenants under the close supervision of farm operators are not considered as separate farmers but as parts of multiple units. . . . These croppers and tenants are treated as hired laborers who receive payment in kind."

Thus, these series differ materially in concept from those published by Census.

The latest publication in USDA series (90) includes data for 1965, 1966, and 1967 for 32 types of farms in 20 major farming

13/ Series: Farm Income Estimates, p. 6.

areas. Gross farm income for 1967, including Government payments, ranged from $4,040 for a Georgia broiler farm to $81,077 for an irrigated cotton farm in San Joaquin Valley in California. Net farm income for that year ranged from $1,113 for an egg-producing farm in New Jersey to $37,761 for a cotton farm in the Mississippi Delta.

Table 6 shows the gross farm income distribution for the various types of farms from 1954 through 1967. Data are available on 42 types from 1954 through 1963, on 44 types for 1964-66, but for only 32 types for 1967. Comparable data for 1965 and 1966 are shown for both sets. Farms included in this series are all family operated. This table is designed to give an idea of a cutoff point, based on gross income, that would include most typical, commercial family-type farms. The table suggests a cutoff in the $5,000 to $10,000 area for recent years.

Table 7 shows the gross income for those types in table 6 that are in the under $5,000 gross income category. A $4,000 cutoff would exclude none of these types currently.

Barton, of USDA, indicated that plans are underway to cut the number of series in half but to develop more data, particularly regarding finances and use of credit, for the series kept.

Table 6.--Number of commercial farms of selected types in specified income classes, 1954-67 1/

Class	1954	1955	1956	1957	1958	1959	1960	1961
	Farms							
Under $5,000	7	5	6	5	3	3	3	3
$5,000-9,999	16	17	16	14	12	15	12	11
10,000-19,999	9	13	11	12	16	12	14	14
20,000-29,999	5	2	4	6	5	7	8	8
30,000-39,999	1	1	1	1	1	1	1	2
40,000-49,999	-	-	-	-	1	-	-	-
50,000 and over	4	4	4	4	4	4	4	4
Total	42	42	42	42	42	42	42	42

Class	1962	1963	1964 1/	A 1965 1/	A 1966 1/	B 1965	B 1966	1967
	Farms							
Under $5,000	3	2	2	1	1	1	1	1
$5,000-9,999	17	5	7	6	5	2	2	2
10,000-19,999	19	23	23	22	21	17	15	13
20,000-29,999	5	4	6	7	7	5	5	8
30,000-39,999	4	4	2	2	4	3	5	3
40,000-49,999	-	-	-	2	2	2	2	3
50,000 and over	4	4	4	4	4	2	2	2
Total	42	42	44	44	44	32	32	32

1/ Types added in 1964-66 fell in the $10,000-19,999 class.

Source: 1954-63 from U.S. Dept. Agr. Statis. Bul. 368 (89); 1964 and A for 1965-66 from U.S. Dept. Agr., Agr. Inform. Bul. 230, revised Oct. 1967 (90); 1967 and B for 1965-66 from U.S. Dept. Agr., Agr. Inform. Bul. 230, revised Sept. 1968 (90).

Table 7.--Gross farm income for types of farms included in the under $5,000 class, in table 6, 1958-67

Year	Type		
	Broiler farms		Small cotton farm, Delta
	Delmarva	Georgia	
	- - - - Dollars - - - -		
1958	2,477	2,664	3,550
1959	3,168	2,461	4,651
1960	3,408	2,520	4,146
1961	3,277	2,566	4,754
1962	3,921	2,618	4,780
1963	4,275	2,641	
1964	4,702	2,597	
1965		3,520	
1966		4,052	
1967		4,040	

Source: Same as for table 6.

Nonfarm income for each farm also will be estimated. An attempt will be made to pick farm sizes that would produce adequate incomes and hence could be expected to expand in number over time. Size would likely be held constant between agricultural censuses but would be expanded in the Census year if necessary to keep that size in the growing sector.

Barton feels that we need (a) measures of changing diversity, (b) such information as is required for proper supply management, including the effects of specific farm programs on specific sizes and types of farms, and (c) income data that relate to individual families regardless of source.

Alternative Approaches

Grove has been the most vigorous critic of the present definitions of farms by class. In 1963 (30, p. 279), he wrote,

"Economic class may also confuse the farmer with the farm. For example, the farm operator may spend less than half his working time on the farm, or he may be semiretired. But this does not necessarily make the farm itself a 'part-time' or 'part-retirement' farm."

However, Census does not classify a farm as part-time or part-retirement unless the gross income is less than $2,500. It is difficult to see how such farms could ever be considered as full-time in our modern age.

In a 1967 paper (31, p. 1246), Grove made this comment:

"The size distribution of farms by value of sales is still a continuum--with one mode not two. But there has been a definite widening of the distribution to the point where it now seems L-shaped, with the mode at the lowest sales value still qualifying as a farm. But the upper tail of the distribution has been stretched out, so there is more economic diversity of farming in the United States than ever before."

"Such diversity within agriculture may call for similar diversity in policies; but, without a relevant classification of farms, there is not a reliable basis for differentiation."

Value of sales, he said, is unsatisfactory as a method of classification because it varies too much from year to year. Also, use by Census of fewer and larger value-of-sales classes had increased the inadequacy.

The ideal criterion, he added, would be total inputs of all production factors, and a second choice would be inputs of nonland capital. Labor input is a third choice for which data could be obtained easily in a census. England has used a standardized labor input by applying man-day factors to acreage, output, or inventory items.

This approach was strongly endorsed by the discussion group on Analysis and Use of Agricultural Statistics, at the 12th International Conference of Agricultural Economists in August 1964.

In view of the increasing substitution of capital for labor, labor input would appear completely inadequate for use in the United States. For England and the European Continent, it might have merit.

Nikolitch (62, p. iii) raised a more important point. He said,

"Resale of products purchased from other farms is an increasingly important aspect of the expansion in the size of farm businesses. . . . In 1959, products purchased from other farms for further processing represented about 22 percent of total gross sales by farms with $10,000 or more of marketings."

As farms become more specialized they must purchase a larger proportion of their inputs. Hence, value added or net income would be a better basis for classification than is gross sales.

"Adequate" Family Farms

Hill and Maier (39, pp. 166-167) gave a good summary of changes in concepts regarding family farms. They said,

"The ideal of the family farm had its roots in the colonial past, when land was abundant relative to labor. Early efforts to establish feudal systems of land tenure failed, because unsettled and unclaimed land was generally available to farmers of moderate means who depended on family labor. Thus, during the colonial period, settlers developed strong sympathy for the idea of individually owned and operated farms.

"Thomas Jefferson's exposition of what we now call the family farm was nurtured in this soil. In his view, an agriculture of owner-operated farmers was desired as the means to a good society rather than being an end in itself. He held that the basis of enlightened self government was the independence and self-reliance of the individual. . . .

"However important the family farm is as a system of agriculture, the smallness of the farm sector means that the family farm cannot be relied upon as the only source of civic virtue and social and political stability."

Higbee (38, p. 80), with his characteristic humor, had a comment on this point. He said,

"If, at a time when farm families are so rapidly leaving the soil and 92 percent of the population lives elsewhere, we continue to regard the family farm as a pillar of democracy, we may wake up to find the roof has caved in."

As Hill and Maier (39, pp. 167-174) said,

"For the country as a whole, the shift to fewer and larger farms has been accompanied by a rise in part ownership and increased use of such devices as vertical integration and land purchase contracts to gain control of the resources needed for larger operations. Farm operators seemingly have a basic interest in income levels and a secondary interest in tenure status. . . .

"Family farms were recognized as businesses in which operating families are risk-taking managers who do most of the work.

"A significant tenure trend with reference to ownership of farms is the rise in part ownership--that is, farms made up of both owned and rented land. This tenure class since 1940 has increased steadily in relation to other tenure classes, comprising 23 percent of all farm operators in 1959. Part owners operated 45 percent of all land in farms. . . . Part owners in 1963 operated 219 million acres under lease--more, in fact, than the 163 million acres rented by tenants. . . .

"Rising land values permit comparatively few farmers to purchase enough land for large-scale operation. . . . Thus only a fifth of all farms of 2 thousand acres

or more are operated by full owners, while three-fifths are operated by part owners. . . .

"In specific instances and on some types of farms, operators rely heavily on nonfarm sources to provide some of the farm resources. Livestock-share leases, farm partnerships, and producer-processor contracts are examples of this type of agreements. Each of these potentially provides that the person who supplies the farm operator with outside capital also participates actively in making some or all of the management decision. . . . Even where farm management decisions rest mainly with farm operators, their decisions more and more must be coordinated with the operation of farm suppliers and processors and adjusted to the requirements of government agricultural programs. . . .

"The high capital needs and the more specialized management ability needed for modern commercial farming could lead in the direction that farms become quite dependent on outside financing, with farm operators divested of an ever larger share both of ownership of farm resources and of decision making.

"Furthermore, some types of farms may become sufficiently large and specialized that both their management and labor force are hired employees. Finally, farming opportunities more and more may come to be hereditary, so that farms are transferred within families from generation to generation.

"Any of these developments could take a direction sharply contrary to the ideal of the family farm."

In 1947, Scoville (75, p. 511) had some interesting comments, which are equally applicable today, about family farms. He said,

"A farm should not be called a family farm if most of the labor is employed under conditions similar to industrial employment. . . . "Those who favor the encouragement of family farms are usually not particularly concerned with the characteristics of the family farm per se. They are more interested in describing the kind of farm that will best further the goals of family farming: adequate incomes; maintenance of the soil; thriving rural communities; political stability. In other words, they have in mind only a part of the whole category of family farms, and they define the family farm in terms that apply only to the special group they are interested in. This fact is not always recognized and is responsible for much of the confusion about the nature of the family farm."

Later in the same paper (pp. 518-519), he listed three definitions for family farms. These were:

"A family farm is one on which the farm operator makes most of the managerial decisions, participates regularly in farm work, and on which his role as employer of labor is minor relative to his other functions.

"A family size farm is one which, operated by a family of average size and managerial ability, will permit reasonably efficient use of labor-saving equipment and of the family labor force over the life cycle of the family. . . .

"The desirable size of farm for the family of average managerial ability would be a farm that would permit the reasonably efficient use of labor-saving equipment and of the family labor force over the life cycle of the family and provide with average management a labor and management return adequate to maintain a socially acceptable level of living."

He then added,

"It must not be overlooked that there is a place in American agriculture for a wide variety of farm sizes to match the wide variation in managerial skill, available family labor, and personal inclinations of farm operators."

The late John Brewster, while with USDA, developed the concept of an "adequate family farm." Koffsky (50, pp. 630-631) summarized this development:

"John Brewster and his colleagues in the Department have come forward with a new concept or standard that merits attention. Briefly, the concept involves the 'adequate family farm.' The family farm is defined as one in which most of the labor and most of the management is performed by the family."

They exclude farms using 1.5 man-years or more of hired labor.

"The adequate family farm represents those family farms with value of sales of $10,000 or over. Brewster notes that the number of farms with less than $10,000 value of sales is declining, whereas those with $10,000 and above are increasing. . . . Recognizing that incomes must increase in order to yield rising standards of living, the minimum of $10,000 of sales would have to increase over the years to perhaps $15,000 or even more by 1975. . . .

"With rapid technological development and the diminished need for hired labor, some larger-than-family farms are apparently shifting into the family-farm category. . . . For farming to provide for adequate and rising standards of living, the 1.6 million inadequate commercial family farms should give way to 600,000 or 700,000 adequate family farms by 1975. We should note here that in the 10 years from 1949 to 1959, the number of inadequate commercial family farms declined by 50 percent. . . . It is clear that the 1959 Census of Agriculture encompasses too wide a range in the commercial farm category--from farms that sell as little as $50 to those with $40,000 or more. As a minimum, farms with sales of less than $2,500 should be removed from the commercial farm group."

Data in the July 1968 Farm Income Situation (91, p. 67 and tables 1D, 3D, and 4D) indicated some interesting trends:

"In 1960 more than one-half of all cash receipts from farming were accounted for by farms with value of sales of $20,000 or more. By 1967, the proportion was nearly 68 percent. Also, this same sales class group increased in number from 340,000 in 1960 to 501,000 in 1967. In 1967 they represented . . . 52.4 percent of the realized net farm income."

Table 8 shows changes in distribution of farms by sales class from 1960 to 1967. Note that farms with sales in excess of $10,000 are increasing as a percentage of

Table 8.--Number and percentage of all farms, distribution by specified sales class, 1960 and 1967

Sales class	Number		As percentage of all farms	
	1960	1967	1960	1967
	- - - Thousands - - -		- - - Percent - - -	
Sales of --				
Less than $2,500	1,848	1,347	46.6	42.8
$2,500 - 9,999	1,277	806	32.3	25.7
$10,000 - 19,999	497	492	12.5	15.6
$20,000 - 39,999	227	318	5.7	10.1
$40,000 and over	113	183	2.9	5.8

Source: Farm Income Situation (91, table 1D, p. 68).

all farms, whereas farms with sales below $10,000 are decreasing in absolute numbers and as a percentage of the totals.

In 1967, farms in the $40,000-and-over class had cash receipts that averaged $117,749 a farm and an average realized net farm income of $23,754. Some of this probably went to off-farm people, such as owners of cattle in feedlots. Realized net income averaged $6,266 for the sales class $10,000 to $19,999.

Almost three-quarters of the realized net income was from farms with sales of $10,000 and over. However, nearly 10 percent was from farms with sales of $2,500 or less.

Nikolitch (62, pp. 12-13) discussed trends for farms with 1,000 acres or more of land. He said,

"The average acreage of the farms in the 1,000-acre-or-more size group has declined, although the number of farms in this group has increased. This group of farms included 14 percent more land in 1959 than in 1949, but also included 21 percent more farms.... The average size of farm in this group declined 7 percent."

"It is thus clear that the concentration of land in the expanding sector of agriculture does not mean so much that the average size of the proficient farms is getting larger as it does that the number of such farms is rapidly expanding."

From 1939 on, farms in the 260-and-above acreage groups were the ones that expanded in numbers and in total acreage.

In another paper, Nikolitch (61, p. 85) said,

"The farm economy in the postwar period has been divided into an expanding sector of relatively large farms and a contracting sector of relatively small farms. During the 1940's, the dividing line between these two sectors fell somewhere in the group of farms with $5,000 to $9,999 of sales. During the 1950's in most of the country, it rose to the group of farms with more than $10,000 of sales. . . . For the period analyzed in this paper (1965), available data indicate that about $10,000 worth of marketings represents the dividing line between the two sectors. From 1939 to 1959, the number of farms with less than $10,000 of sales decreased 41 percent and the value of their marketings declined 19 percent. For the same period, the number of farms above this level of sales increased two and a half times, and the value of their marketings tripled."

This point was emphasized again in the following statement by Nikolitch and McKee (63, pp. 1548-1549):

"Two developments in our postwar agriculture . . . have created much confusion and controversy. . . . One is the rapid decline in the number of small commercial farms. The other is the increasing volume of production from the remaining farms. . . . Through a classification of farm characteristics by economic class, . . . three main observations . . . (are) (1) the small commercial units (with sales of $2,500 or less) . . . account for practically the entire net decrease in the number of all farms. (2) Farm production . . . is being concentrated on an expanding number of adequate farms and not, as is often believed, on an ever decreasing number of increasingly larger farm organizations. (3) Numbers of farms and farm production are increasing more rapidly among adequate farms than among larger-than-family farms.

"That family farms with $10,000 or more of sales are the most rapidly expanding sector of our farm economy is a fact whose significance cannot be overestimated."

In 1966 Ruttan (71, p. 1113) pointed out,

"With family median incomes in metropolitan areas approaching $7,500 per year, it is clearly only farms with sales of $20,000 or more that can come near providing family incomes sufficient to permit a level of participation in the market for consumer goods that is consistent with American standards."

"If total production were to be concentrated on farms such as those with sales of $20,000 or more, the total U.S. farm output could be produced on 750,000 farms. If production were concentrated entirely on farms such as those with sales of $40,000 or more, the total U.S. farm output could be produced on less than 40,000 farms. It seems apparent that the technological capacity already exists that could permit production of 80-90 percent of the value of total U.S. farm output on between 50,000 and 100,000 production units."

The following statements suggest various directions in which agriculture may move, each of which involves retention of some type of family farm as a major source of agricultural production. It is too early to say which will prove to be right.

Harl (32, pp. 158-159) said,

"The farm firm may well be entering an era of dramatic and far reaching structural and organizational change, perhaps the most dramatic and far reaching in its long and colorful history. ... The family farm will likely continue, at least for a time, if the term is redefined to encompass principally ownership and management concepts. Farm firms of the future will be owned and managed in a great many instances by more than one individual, will be more detached from the household than currently, and will be less subject to the family cycle of its owners and managers than it traditionally has been. Substantially greater use will likely be made of the corporation and its variants and derivatives. It would appear that more equity capital will be provided to agriculture from outside the sector."

Farris (20, p. 182) said,

"An agriculture made up mainly of family farms, in which considerable managerial independence would be retained by the farm family, probably can be saved. If society wants to strengthen the family farm, some policy alternatives are available which would contribute in this direction. Choices and actions at this time can play a key role in forming the organizational pattern in the agriculture of tomorrow."

Daly said,

"Farm consolidation has often molded the smaller, less efficient units into fewer, large productive units. Such consolidation alone accounts for much of the increase in productivity in agriculture and may be a dwindling source of gain if commercial agriculture keeps moving toward larger optimum units. ...

"United States agriculture can look forward to rapid technological advances in the years ahead which will lead to fewer, larger, and better-managed commercial farms. These farms will require much more capital and purchased nonfarm resources. And, they will use much less labor and perhaps about as much land as they do now. The output potential of these farms will grow, perhaps fast enough to keep planners many years hence worried over our excess productive capacity in agriculture." 14/

Nikolitch (62, p. iii) commented,

"Data for the expanding sector suggest increasing specialization in farming. The types

14/ Op. cit., pp. 4, 7.

of farms that increased most rapidly in numbers were dairy, field crops other than cash grain or cotton, and poultry. . . .

"The minimum size of farm necessary for economic survival would be considerably larger than it now is if it were not for an increasing reliance of farm operators on incomes from nonfarm sources."

Upchurch came close to my views when he said,

"The modern family farm with $100,000 or more in capital investment may look quite different from grandfather's family farm, but self employment of the farmer and his family remains a dominant characteristic of most types of farming. . . .

"Perhaps the most subtle and most important of all changes is the change in the attitude of farmers regarding the purpose of farming. The purpose of modern commercial farming is to make money. . . . When you reflect on this idea you may better understand the changes that are remaking our agricultural industry and reshaping the lives of farm people." 15/

In the first outline that I prepared for this project, I referred to the problem as "The emerging industrialization of agriculture." I changed "industrialization" to "commercialization." Some livestock and poultry enterprises are organized like large industries, but I believe the day is faraway when the bulk of our agricultural production will be produced by a few giant corporations. The day is here, however, when farming has ceased to be "a way of life" for those making significant contributions to farm output.

15/ Op. cit., p. 4-5.

IV. CURRENT ESTIMATES OF SELECTED FARM DATA

Number of Farms

Current data on number of farms are compiled by SRS. The following description is taken from Grove, Cannon and Masucci (29, p. 5). They said,

"Based on Census of Agriculture data adjusted for under-enumeration, the series on number of farms is revised every 5 years following the Census. Information available as to census completeness varies State by State, but some under-enumeration of farms is generally to be expected, and the State estimates are almost all larger than the Census numbers. For census years prior to 1950, the census numbers of farms were adjusted upward for varying degrees of incompleteness as indicated by check data on a State or county basis. Following the 1950 and 1954 Censuses of Agriculture, the Bureau of the Census undertook detailed special surveys to provide estimates as to completeness of coverage and measures of sampling error. Estimates of the number of farms in the United States for 1950 and 1954 were based on this census quality check, and State estimates were adjusted so as to add to the indicated totals."

"Trends in numbers of farms for intercensal years are established from a wide variety of local data available in the States. This includes (1) indication of change shown in the larger acreage and livestock surveys (currently major reliance is placed on the June Enumerative Survey), (2) annual assessor's censuses in some States, (3) land assessment records in others, (4) trend information obtained through the Agricultural Stabilization and Conservation programs, and (5) other miscellaneous sources."

Some believe that the SRS figures are inflated because of use of the point system and that too much underenumeration is credited to the census. Data for 1950 and 1954 probably are nearly correct owing to the surveys made by Census, but despite such surveys following the 1959 and 1964 Censuses, it is possible that the adjustments in later years have been too large.

It is doubtful that SSA or IRS data could be used for a count of farms so long as the present definition of a farm is retained. Suggestions have been made by some that the definition of a farm should be made to conform to the reporting requirements for income tax purposes. If so, the number of schedule F's filed, plus the number of farm corporations, could be used as a count of farms, after correction for double counting of landlords, partners filing individual schedule F's, and Vo-ag projects, and for omission of farms operated by nonagricultural corporations. (See pp. 2-4 for my proposals in this area.)

Farm Population

These data are published by the Human Resources Branch of ERS in cooperation with

Census. The following description is taken from an undated mimeographed USDA report.

"The estimates presented in these series related to the rural civilian population living on farms, regarding of occupation. . . . Persons . . . living on rented places where no land is used for farming are classified as nonfarm.

"Current farm population estimates and estimates of components of change in the farm population are derived from four principal sources: (1) Current Population Surveys of the Bureau of the Census, from which the Census-ERS estimates of the U.S. total farm population are derived; (2) annual ERS surveys of the farm population, from which geographic distribution and components of change of the farm population are derived; (3) decennial population censuses; and (4) other related data.

"Estimates of the total farm population and its characteristics are obtained in the Current Population Survey of the Bureau of the Census. Farm population estimates have been obtained from this survey since 1944 when a technical committee representing both the Bureau of the Census and the Department of Agriculture recommended that a cooperative series of farm population estimates be established, to be based on data from the monthly sample survey of the Bureau of the Census now identified as the Current Population Survey (CPS). The sample for this survey is now spread over 449 sample areas comprising 863 counties and independent cities, with coverage in 50 States and the District of Columbia. . . .

"Published farm population estimates from the CPS are April-centered annual averages of quarterly data. The averages for the total and each population characteristic are based on data for the months of January, April, July, and October of the year being estimated and October of the preceding year. A weight of one-eighth is given to each of the two October estimates and a weight of one-fourth to each of the estimates of the other three months. . . .

"The annual ERS mail-questionnaire survey conducted for the Economic Research Service by the Statistical Reporting Service provides data from which geographic distribution and components of change in the farm population are derived. This survey is conducted in April of each year in every State except Hawaii. Farmers are asked to report for their own and bordering farms the number of persons living on each farm at the beginning and end of the 12 month April-April period. They also report on births, deaths, and changes through migration which occurred during this period. The questionnaires are mailed from the office of each State agricultural statistician to a list of farmers known as crop reporters. In recent years these questionnaires have been sent to about 100,000 farmers. Of the approximate one-fourth returned, about 80 percent are usable.

"The questionnaires are edited and totaled and ratios of each component of change during the specified period to the sample farm population at the beginning of the period are computed for each State. By applying ratios from the sample to previously obtained State estimates for the beginning of the period, estimates are obtained of each component of change during a year. These expanded estimates of births, deaths, and movements of persons to and from farms are summed to the populations at the beginning of the year to obtain a set of preliminary estimates of the farm population at the end of the year. Final estimates are developed by adjusting the preliminary State estimates so that they will sum to the independent estimate for the United States provided by the CPS, and likewise adjusting components of change to account for differences shown.

"Although the basic procedures involve the preparation of State estimates, only regional and divisional figures are published for postcensal dates. . . .Once every ten years, when

terminal and beginning bench-mark Census of Population data become available, a new set of intercensal estimates are prepared. Estimates of farm population and components of farm population change are published for States as well as for geographic division and regions for intercensal periods." 16/

Relative sampling error of the April-centered average U.S. farm population estimate currently is about 3 percent. No estimation of sampling variation is possible from the annual ERS farm population survey because it is a mail survey rather than an enumerative survey. The size of the mailing relative to the number of farms varies widely from State to State. The June Enumerative Survey, which consists of a national sample of land segments, might provide more accurate information as the data are obtained by direct interviewing. Experimental studies in this area are underway.

Effects of the SRS "point" system on farm population estimates based on the June Enumerative Survey were discussed on pp. 20-21 (See particularly table 4).

Farm Income as Reported by USDA

The following is from an undated mimeographed memo prepared in USDA.

"The series were instituted originally and still remain the principal measure of the economic well-being of farmers. . . .

"There are two major concepts of farm income. The first and the most widely used views farming as a business or industry and measures the gross and net income from farming. To be precise, the concept and estimating methods treat U.S. farming as though it were a single large farm operated as a sole proprietorship. . . . The second major concept is the personal income of the farm population including income received from both farm and nonfarm sources." 17/

Figure I shows the major components of the various farm income series and how they are related. It also shows their size in billion dollars for 1967 as reported in the July 1968 Farm Income Situation (91). Major components are estimated in the following way:

Cash receipts--Estimated monthly farm marketings, times SRS prices received by farmers. As indicated on pages 88-89 some of the price series are suspect because of extensive use of varied types of contracts or because of integration which eliminates pricing of raw materials at local markets.

Consumed in farm households--Based on surveys by SRS.

Rental value of farm dwellings--Estimated, but not much basis.

Government payments--Based on ASCS monthly data. Loans are counted as income in the month they are made, and redemptions are subtracted from income in the month redeemed.

Expenses--Annual data made available from SRS on purchased livestock and from ERS on real estate taxes. Interpretations from Census data and some special surveys are available for other items. Data sources, particularly on a current basis, are weak in this area.

Changes in inventories--Physical changes valued at current prices.

As shown in table 9, there is reasonably good correspondence between cash receipts of farmers as estimated by USDA and as reported by IRS. This fact is not realized by the general public and was a surprise to me.

"On the other hand, IRS data on net farm profits are only about a third of the USDA

16/ Review of Individual Statistical Series: Farm Population, pp. 3-6.

17/ Series: Farm Income Estimates, pp. 1-2.

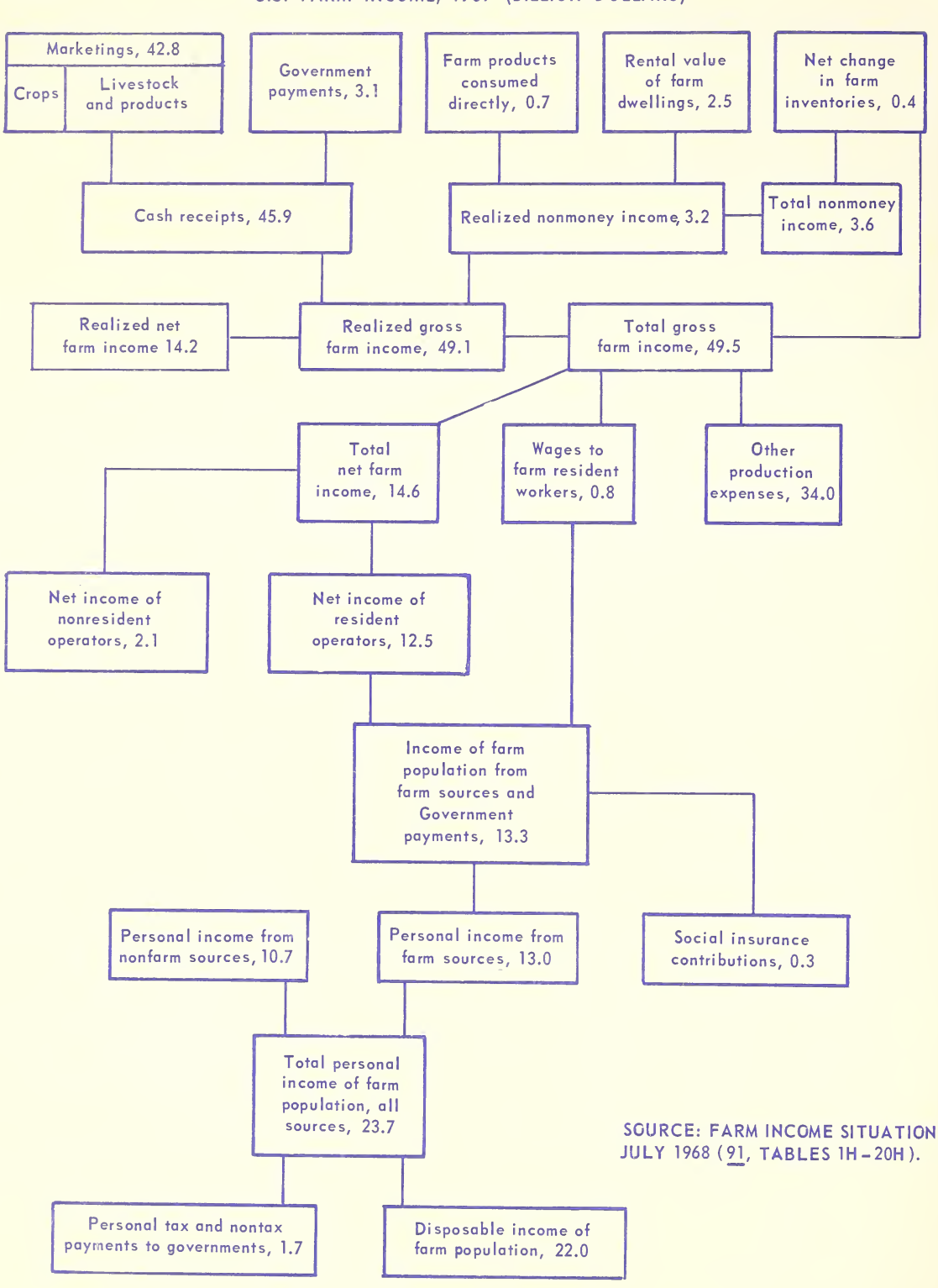
U.S. FARM INCOME, 1967 (BILLION DOLLARS)
Marketings, 42.8
Crops
Livestock and products
Government payments, 3.1
Farm products consumed directly, 0.7
Rental value of farm dwellings, 2.5
Net change in farm inventories, 0.4
Cash receipts, 45.9
Realized nonmoney income, 3.2
Total nonmoney income, 3.6
Realized net farm income 14.2
Realized gross farm income, 49.1
Total gross farm income, 49.5
Total net farm income, 14.6
Wages to farm resident workers, 0.8
Other production expenses, 34.0
Net income of nonresident operators, 2.1
Net income of resident operators, 12.5
Income of farm population from farm sources and Government payments, 13.3
Personal income from nonfarm sources, 10.7
Personal income from farm sources, 13.0
Social insurance contributions, 0.3
Total personal income of farm population, all sources, 23.7
Personal tax and nontax payments to governments, 1.7
Disposable income of farm population, 22.0
SOURCE: FARM INCOME SITUATION, JULY 1968 (91, TABLES 1H-20H).

Figure I

Table 9.--Partial reconciliation of estimated cash receipts of farms as reported by IRS and USDA, 1955 and 1963

Item	1/ 1955	1963
	- - - - Billion dollars - - - -	
U. S. Department of Agriculture data:		
Cash Marketings	29.9	2/37.4
Government payments	.2	2/1.7
Intrastate livestock sales (adjustment)	+.9	3/+1.8
Total (including adjustment)	31.0	40.9
Internal Revenue Service Data:		
Business receipts	25.8	4/37.4
Adjustments:		
Livestock sales reported as capital gains	+1.0	5/+1.0
Share rent	+.7	6/+1.0
Marketing costs	+.6	7/+.6
Machine work, other services, crop insurance indemnities	-.5	7/-.6
Patronage dividends	-.2	8/-.2
Other	-.6	9/-.8
Total (including adjustments)	26.8	38.4

1/ Estimates by Stocker and Ellickson (79, pp. 116-126). 2/ Farm Income, State Estimates, 1949-1966, Supplement to the July 1967 Farm Income Situation, Economic Research Service, U.S. Dept. Agr. 3/ Livestock expenses reported in the 1964 Census of Agriculture, Vol. II, ch. 6, table 15, p. 648 and livestock purchases excluding intrastate purchases reported in the Farm Income Situation, Econ. Res. Serv., U.S. Dept. Agr., July 1967, table 13 H, p. 56. 4/ Statistics of Income--U.S. Business Tax Returns 1963, Internal Revenue Serv., U.S. Treasury, table 1, p. 30. 5/ Statistics of Income--1962, Sales of Capital Assets, Internal Revenue Serv., U.S. Treasury, table 1, p. 24. 6/ Unpublished data, Econ. and Statis. Anal. Div., Econ. Res. Serv., U.S. Dept. of Agr. and rent deducted on farm income tax returns as reported in Statistics of Income--1963, U.S. Business Tax Returns, table 1, p. 30. 7/ Unpublished production expense estimates, Econ. and Statis. Anal. Div., Econ. Res. Serv., U.S. Dept. Agr. 8/ Statistics of Income 1963, U.S. Business Tax Returns, table 9, p. 79. 9/ Including an adjustment for corporate receipts from foreign areas.

Source: Adapted from Reinsel (69, table 16, p. 33).

estimate of net farm income after rough adjustment for differences in concept." 18/

Possible reasons for this discrepancy are discussed in Section X, pages 75-78.

IRS has a 1-percent sample showing a large amount of detail for business returns, which can be obtained for use by research personnel. The expense data for 1968 tax returns in this sample will be tabulated for USDA for 10 to 12 farm business-receipt classes, up to the $100,000-and-over category. This tabulation will be available in 1970. If a reconciliation can be made between the USDA and IRS expense data, income data for the same returns will be obtained later.

18/ Ibid., p. 5.

It is believed by some USDA research personnel that IRS sources could be a more efficient means for obtaining data on receipts and expenses than are special surveys. Individual names are coded on this sample, so no problem of disclosure is involved. This sample relates to individual proprietors. Data for corporations and partnerships are another problem.

A need exists to acquaint the general public and general researchers with the extent to which IRS and USDA data can be reconciled and why they differ. The following from Houthakker (43, p. 44) is illustrative:

"Farm income is in fact used as a basis for discrimination in favor of farmers. This is done through the income tax, which bears less heavily on farmers than on other people with the same income. In 1964, for instance, only $2.6 billion of farm income was declared on individual tax returns, although according to the U.S. Department of Agriculture farm income was about five times as large. . . .The most glaring discrepancies are in the Southwest, particularly in Texas which according to the USDA in 1964 had a net farm income exceeding $800 million while the tax returns filed in Texas recorded an aggregate farm loss of $60 million."

To clarify certain matters, I wrote the IRS District Office in Dallas and received in reply a phone call from the Assistant Chief of the Audit Division. He indicated that there would be no way of separating the income from farming from other income for a corporation of whose total income agriculture was a minor part. On the other hand, all of the income for a corporation whose major activity was agriculture would be classified as coming from farming. In other words, corporations are given an industry code based on their major source of income, and the source of any additional income loses its identity.

Income from farming for individuals or partnerships can be isolated because this is reported on schedule F. Clarification on these points is given in an IRS report on business tax returns (92, pp. 298). It said,

"Usually, each return was assigned one four-digit industry code. However, when a Form 1040 had more than one schedule C (non-farm business) schedule F (farm), each schedule was treated as a separate proprietorship to the extent that it could be identified as engaging in a business activity different from the others. . . . In contrast, if both schedules were identified by the taxpayer as having the same business activity, e.g., each a gas station, the two schedules would be combined and treated as one proprietorship."

Net farm profit (or loss) is defined in the same report (p. 299):

"This is a partnership's net profit or loss from farming operations as reported on line 9, page 1, Form 1065. It is shown in the tables primarily for partnerships whose principal business activity was not farming.

"The partnership was asked to explain the amount on line 9 attaching a copy of schedule F, Form 1040, showing the detail of its farm income and expenses. If farming was the partnership's principal business activity, the schedule F, if one was attached, was edited and the detail was included in business receipts, cost of goods sold, and other income and expense items."

Gains or losses from sales of breeding cattle or other capital assets relating to farming would be combined with gains or losses from nonfarm capital assets in schedule D, and again the source would lose its identity.

Farm Income as Reported by the Department of Commerce

Based on the previously cited USDA memo,

"Farm proprietor's income as reported by the Department of Commerce is the same as total net farm income estimated in the Department. . . .

"Revisions are limited to the 3 preceding years unless the U.S. Department of Commerce schedules revision of the National Income Accounts for earlier years. In that event the farm income accounts are revised for the same period of years as the National Income Accounts." 19/

In 1965, data were revised back to 1910, and revised data from 1959 forward were published in July 1968.

"For a number of reasons, statements from the USDA frequently are made on the basis of 'realized' net farm income. However, it is the 'total' net income figures that are used by the Department of Commerce in the national income accounts. The Council of Economic Advisers also uses the total net income figures and publishes them in Economic Indicators."

Differences between the two series are given in more detail in Grove, Cannon, and Masucci (29, pp. 4-5). They said,

"Total net income originating in agriculture . . . is derived by adding farm wages, including perquisities, farm-mortage interest, and net rent to nonfarm landlords to the net income of farm operators. . . . This series differs somewhat in concept from the series published for 'farms' in the Department of Commerce tabulations of national income by industrial origin. The Department of Commerce series excludes net farm rents paid to nonfarm landlords and that part of farm-mortgage interest which was paid by nonfarm landlords, both of these items being assigned to the 'real estate' industry. On the other hand, the Department of Commerce series includes . . . farm employer's contributions to unemployment insurance and to private pension and welfare plans, workmen's compensation (for injuries) of hired farm workers, and short-term interest paid by farmers less an imputed charge for bank services to farmers."

The USDA series generally is larger.

There appears to be some double counting of agricultural operation in the National Income and Product Accounts, particularly for corporations that engage in farming but for which this is not their major activity. For example, many meatpackers operate large feedlots. Total income for these packers would be reported in the food-processing industry, but USDA would include the income from the feedlots as part of the total net income originating in agriculture. There may be some double counting also for noncorporate firms. The Department of Commerce plans to attempt to eliminate this double counting, so that income from agricultural operations would be included only as a source of farm income.

The Balance Sheet of Agriculture

The following is from Irwin (45, pp. 12-13):

"A series designated 'The Balance Sheet of Agriculture' has been published since 1944 and the first publication carried data back to 1940. It is intended to provide an annual general measure of the well-being of agriculture, by summarizing data collected in a number of statistical series into one unified picture. It 'shows the aggregate value of the physical plant and equipment of farms in the U.S. together with the household goods and most of the intangible wealth of farm families' on the asset side; on liabilities, it includes debts 'owed by farmers, the debts of landlords arising from land ownership on farming activities, and the value of equity or property rights of owners (both owner- and tenant-operators and landlords) in the farming industry.' 'Agriculture

19/ Op. cit., pp. 4-6.

is thought of as though it were a vast unified enterprise associated with one great farm household.' 'The BSA is an aggregate that, in principle, should provide the same national data as would a consolidated balance sheet based on reports from farm operators, from farm landlords with respect to their farm interest only and from other farm residents with respect to their financial and household items now reflected in the BSA.

"Basically, it uses a physical site concept to count and value the tangible physical resources and debts, and to identify farm operators. It then adds in many of the financial assets of those persons identified as farm operators." (Quotations are from Burroughs (11, p. 22).) . . .

"The Balance Sheet concept provides a useful overall picture of the farm sector, provided that the interpretation is in a very general way. But since it covers such a diversity of conditions, more homogeneous classifications are required if many detailed interpretations are to be made."

He made the following recommendations (pp. 14-15):

"The name of the publication should be changed to Balance Sheet for the Farming Sector. The switch from the term 'agriculture' to 'farming sector' should also be encouraged in the social accounts and other aggregate data series. . . .

"Since ... farm operators as a group are of interest to many users, it is important to provide such a breakout."

He included many other suggestions too detailed to be covered in this report.

On page 34, he said,

"As part of a national conference on the feasibility of a wealth inventory, a study group (sponsored by the National Bureau of Economic Research) made detailed recommendations on redefining concepts to improve comparability, on improving data and on development of new measures. . . .

"The focus was on separating the farm firm and household and on putting the agricultural wealth of nonoperating owners into the real estate industry. They recommended . . . four economic classes . . . : Large commercial farms ($20,000 plus on sales), medium commercial ($5,000-19,999), small commercial (under $5,000), and noncommercial."

It is hoped that a separate balance sheet can be published for each of the major economic classes of farms.

V. FARM INCOME PER CAPITA OR PER FARM-- A MEANINGLESS CONCEPT

Given the wide diversity in agriculture and the rapid changes that are taking place in that sector, data expressed on a per capita or per farm basis generally have been more misleading than helpful. For example, practically all of the decline in number of farms that has occurred over the past 15 years has been among farms with sales of $2,500 or less, and for this group, the decline has been large in terms of percentage of total farms and absolute number. Thus, per capita data for (a) all farms and (b) those with sales of $2,500 or more must follow divergent trends. Yet the latter sold 96.4 percent of all farm products, based on the 1964 Census of Agriculture (see table 22 in the appendix).

For many years, students of farm policy have urged that data on farming be applied to specific groups, instead of discussions of averages or even totals for all farms. Another possibility is to discuss averages for a specific group of types of farms. This is what is done in the introductory sections of the USDA reports on Farm Costs and Returns, Commercial Farms (see 90, p. 3 for example). These averages have meaning in the same sense that costs for a specific market basket of groceries have meaning. For another example, an unweighted average price of buggy whips and automobiles does not have meaning.

Below are given a few quotations that I ran across in my reading and that relate to this area.

In 1948, Bachman, Ellickson, Goodsell, and Hurley (4, p. 701) said,

"Broad farm averages which have always been of little significance, now seem even less meaningful."

In 1963, McElveen (55,pp. 10-12) wrote,

"Due to the wide range and extreme right skewness of the farm income distributions, reductions in number of smaller farms over time can cause the mean income to increase even though incomes of the remaining farms declined. . . .

"Clearly, unadjusted statistical series on the number of farms of different economic classes are not always reliable indicators of farm income."

In 1965, Breimyer (9, p. 129) said,

"A count of number of farms can mislead as to the importance of either the large or the small ones. Sizes differ so much that to combine farms by numbers is like adding rabbits and elephants. . . .

"As farming becomes more specialized, a question may be raised whether aggregate totals for agriculture have any meaning at all. Perhaps studies of the future will be concerned only with hog production as such, and citrus as such, and corn belt grain farms as such."

Two years later, Kellogg (47, pp. 13, 18) commented,

"Farms are currently being consolidated in the U.S. at the fastest rates in history. To project the average to 1980 is hazardous; more importantly, it is meaningless. It is meaningless because the trends toward industrialization and specialization of both the enterprise and labor will result in farms of very different sizes, depending upon the commodity produced. . . .

"The word 'farm' no longer can be adequately defined. To use it may be increasingly misleading."

On a somewhat different topic, but within the same general area, is a note by Duvick and Uhl (17, pp. 179-181) relating to the recent USDA study of parity returns to agriculture (93). The authors asked,

How do these averages relate to the individual farms that make up the population?

They then examined data for 378 Michigan dairy farms for 1966. Part of their data are reproduced in table 10.

"The above comments are intended to supplement, rather than dispute, the results set forth in the USDA study. But we do feel they suggest a need for further investigation of the distribution of parity returns within each size class for the various types of farms. Such information may materially aid policy decisions with respect to the farm sector."

Table 10.--Returns from farming in relation to parity returns for specified groups of farms classified according to gross sales, 1966

Item	Gross sales		
	$10,000-19,999	$20,000-39,999	$40,000 and over
	- - - - Percent - - - -		
Average returns from farming as a percentage of parity returns:			
All farms in U.S.	85	1/129	
Dairy farms in Michigan	42	81	105
Percentage of farms in Michigan with returns above parity:			
Dairy	3	34	52
All other	19	32	47

1/ Total for all above 20,000.

Source: Duvick and Uhl (17, table 1, p.180).

VI. CONCEPTS AND PROBLEMS IN MEASUREMENT OF FARM LABOR

A report by McElroy gave detailed information on the hired farmworking force of 1967. The following is from his summary (54, pp. 1-4):

"Almost 3.1 million different persons did some work on farms for cash wages or salary in 1967. . . . This represents an increase of 11.1 percent from the estimated 2.8 million hired farm workers in 1966 and is counter to the continuous annual decline which has been in progress since 1962. . . . Casual workers (those who did less than 25 days of farm wage work) numbered about 1.3 million, up from about 1.1 million in 1966. Noncasual workers (those who did 25 days or more of farm wagework) numbered around 1.7 million, about 100,000 more than in 1966."

Of the total hired workers, 58 percent were temporary, mostly housewives and students. Thirty-two percent were 14-17 years of age; of these, 78 percent were boys and 75 percent lived in nonfarm places at the time of the survey. Hired workers performed one-fourth of the total number of days of labor on farms. Regular and year-round workers made up 22 percent of the work force and did 69 percent of the wagework.

McElroy said (p. 24),

"The estimates in this report are based on information obtained for the Economic Research Service by the Bureau of the Census through supplementary questions on the regular Current Population Survey of December 1967. If a question on the regular survey concerning farm wagework was answered affirmatively, additional questions were asked on days of farm wagework and farm wages, migratory or nonmigratory status, nonfarm wagework and associated wages, the chief activity in 1967 and other related matter."

The following definitions were used (pp. 29-30):

"Farm wageworkers.--Persons 14 years old and over in the civilian noninstitutional population of the United States at the time of the survey who did any farmwork for cash wages or salary at any time in the year, even if only for 1 day.

"Farmwork for cash wages or salary consists of the following: (1) Work done on any farm for cash wages in connection with the production, harvesting, threshing, preparation for market, or delivery to market of agricultural products; (2) work done off the farm for a farmer by his hired farmworker, such as trips to town to buy feed, seeds, or fertilizer, or to handle other matters involved in running the farm business; (3) repairs of farm buildings, machinery, etc., performed by a farm wageworker when done along with the type of work specified in (1) and (2) above; and (4) managing a farm enterprise for cash salary. Not included as farmwork for cash wages or salary

are (1) work performed by farm operators on their own farms, or 'exchange' work between farmers; (2) work done exclusively for 'pay in kind;' (3) work done without pay on a family farm by a member of the farm operator's family, (a small regular cash allowance is not considered as farm wages); and (4) nonfarm work performed on a farm, such as the building of a farm structure, the drilling of a well, the hauling of agricultural products to market by commercial truckers, or domestic service in the home of a farmer; and (5) custom work such as spraying, threshing, combining, etc., when a person is paid a combined rate for the use of his equipment and labor.

"Casual workers.--Persons who did less than 25 days of farm wagework.

"Noncasual workers.--Persons who did 25 days or more of farm wagework. Noncasual workers include:

"Seasonal workers.--Persons who did 25-149 days of farm wagework.

"Regular workers.--Persons who did 150-249 days of farm wagework.

"Year-round workers.--Persons who did 250 days or more of farm wagework.

"(The use here of the terms 'seasonal' and 'regular' differs from that in the Census of Agriculture, where 'seasonal workers' refers to persons employed on one farm for less than 150 days during the year, and 'regular workers' to those employed on one farm for 150 days or more during the year.)"

The series of estimates published monthly in the SRS report Farm Labor are derived from a mail survey of a list of general farm reporters. The President's Committee To Appraise Employment and Unemployment Statistics, after reviewing the series and the methodology, stated, "It is quite clear that the USDA statistics on employment are in need of improvement." 20/ Pursuant to the Committee's recommendation, SRS has developed a probability survey to collect employment data, with the objective of supplementing or eventually replacing the old system as rapidly as budgets permit.

Three major problems, other than those relating to sampling, are: (a) The fact that the present USDA farm labor data relate to family or hired help for a "resident farm operator." This definition excludes operators who live away from the farm or corporate entities that direct their farm operations from city headquarters. (b) The fact that more and more of the work formerly done by farmers now is performed by agricultural service firms. A USDA committee has proposed a new definition, which would include all work done in connection with the producing, marketing, or packaging of farm products where the market preparation does not alter the form of the product. Custom furnishers of labor and machinery for land preparation, spraying, and harvesting almost certainly would be included and retail outlets that supply direct farm services possibly should also be included. This new definition would entail at least part of the industries listed in the 01 and 07 classifications of the Standard Industrial Classification Manual (see pages 22-23), with screening to take nonagricultural industries out of these groups. (See pages 4-5 for my suggestions in this area.) (c) The need for some way to split the time of workers for integrated firms between that spent on agricultural and that spent on nonagricultural work. For example, in a recent USDA memo relating to this topic the following question was raised:

"Are the 'Minute Maid' bookkeepers and truck drivers doing agricultural work? And how about the workers engaged in producing frozen juice concentrate?"

20/ Measuring Employment and Unemployment, p. 101, Sept. 27, 1967.

This memo went on to say,

"Negotiations are currently underway to obtain from the Office of Research and Statistics of the Social Security Administration a list of farmers submitting Social Security Forms 943 and 941. This list, we are hopeful, will provide a representative sample of the 01 category (farm operators) of the SIC Manual. Conversations with the Office of Statistical Standards has indicated that our estimates of agricultural employment should also include the 07 category (agricultural services) of the SIC Manual." 21/

The new proposed sample, which would relate to 1 week, would include the following workers:

1. Working operators, if they did any work that week

2. Unpaid family members working 15 hours or more on the farm

3. The following, if they worked 1 hour or more:
   a. Regular hired workers
   b. Local seasonal workers
   c. Nonlocal seasonal workers.

In 1967, R. J. Jesson of the University of California wrote,

"The Department should be more willing to accept into its domain such specialty producing units as animal breeders, floriculturists, plant nurseries, mushroom producers, 'fish farms,' etc. and such service organizations as the various agri-businesses. The economic and/or legal structure of the producing unit should not be used as a means of deciding whether it is 'agricultural' or not. Nor should the geographic location of the activity be a criterion of whether it is agricultural. Hence, the 'on farm' criterion is a poor criterion and it will get worse."

"I suggest . . . that we distinguish between farm workers and agricultural workers as follows: Farm workers are persons employed by farm establishments (precisely defined). Agricultural workers are persons employed (or self-employed) in an activity regarded as agricultural (precisely defined). Hence, these definitions permit . . . agricultural workers who are not farm workers." 22/

This would seem also to imply that there are farm workers who are not agricultural workers; that is, there are workers employed by farm establishments to do nonagricultural work. These distinctions may be useful in a conceptual sense, but they appear difficult to apply in practice.

Reinsel (70, p. 745-747) pointed out that USDA data showed 3.6 million farm wageworkers in 1959, but social security taxes were paid on farm wages of only 1.9 million workers. Farm wagework counts for social security only if $150 or more is received in a calendar year from one employer or if the person works for one employer for 20 or more days a year and is paid on a time basis--per hour, day, week, or month.

The following comments provide insight into trends in the area and the nature and status of farm wagework.

In 1962, Nikolitch (59, pp. 1062-65) wrote,

"The number of family workers is declining almost solely on small farms with little production, while the number of hired workers is declining on the larger farms that provide steady work. As a result, the amount of work done by hired workers is decreasing faster than the amount done by family workers. . . .

21/ Appendix I: The New Farm Labor Program, pp. 3, 7-10.

22/ Memo to Ralph Stauber and Earl Houseman, Stat. Report. Serv., Mar. 9, 1967.

"The 3.2 million decrease in family workers between 1939 and 1959 came almost exclusively from the 2.2 million farms that disappeared in that period."

More recently, Schuh (72, p. 30) commented,

"Among casual workers, two-thirds are not in the labor force most of the year. . . . But even among noncasual workers, many are out of the labor force most of the year. The proportion of students among noncasual workers more than doubled since 1951. Together housewives and students now comprise almost one-third of the noncasual workers."

Concerning status, Fuller and Beale (21, pp. 1239, 1242) said,

"It is difficult to identify a more poorly paid occupation than that of the hired farm worker. . . . Although farm wage rates are rising, the gap between farm and nonfarm wages is not closing. . . .

"The low social status accorded to hired farm work is surely a serious hindrance to attaining an adequate supply of farm workers. The classic American study of the status of occupations showed hired farm work to be lower in 'general standing' than all other occupations, except sharecropper, bartender, and garbage collector. . . .

"Year by year the skill level demanded of (farm) workers increases, with the growing sophistication of techniques and equipment, while the regular farm work force is largely drawn from a shrinking pool of socially handicapped persons. . . . If industrial farming is to be a self-dependent system, it has to learn to rely less upon external agencies to supply its labor force and its entrepreneurship."

In other words, agriculture will need to provide some means by which farmworkers can climb the ladder of success as is now common in many nonagricultural areas.

In 1968 Fuller (22, p. 421), commented,

"The attributes of poverty and underprivilege possessed by farmworkers are essentially the same as those of all poor and underprivileged. Because farmwork has practically no obstructions to entry, poor people who have limited employment alternatives are found here in large concentrations. But most of any current farmworker population is temporary and transitional. Therefore, the therapy of social policy is properly not to be directed toward them as migrants or as farmworkers. . . . They are therefore a category of all of the potential clientele of the nation's antipoverty and equal opportunity programs. . . .

"Not all farmworkers are in poverty. . . . Farmwork for hire is not really an occupational category. Many people do some farmwork, but few remain at it as long-term activity."

VII. SOURCES OF INCOME TO FARMERS

As pointed out on page 11, people who live on farms receive nearly half as much income from nonfarm as from farm sources. In this section, relations between profits or losses from farming and off-farm income, typical types of off-farm work, and certain statistical problems relating to data in this area are discussed.

Profits or Losses From Farming and Off-Farm Income

Reinsel made an extensive study of farm and off-farm income reported on Federal income tax returns for 1963. In his summary (69, p. ii), he said,

"Individuals with farm income often report little or no profit on their farm tax returns. In 1963, more than one-third reported losses and another two-fifths reported profits of less than $2,000. . . . Large farm profits and large wage and salary earnings were not usually received by the same people."

Incomes from dividends and interest were largest for individuals with large farm losses.

"About half of those with nonfarm businesses reported farm losses."

Tables 11 and 12 summarize some of his major findings. Table 11 shows that most operators of farms with sizable profits spend full time at the job of farming; that is, their nonfarm wages and salaries are small. On the other hand, wages and salaries, as well as other nonfarm sources of income are large, on the average, for farms with large losses.

In his table, Reinsel shows data for a number of groups having small profits and

Table 11.--Average farm and off-farm income of individuals with farm income, by amount of farm profit or loss, 1963

Farm profit or loss	Combined farm and off-farm income	Farm profit (+) or loss (-)	Off-farm income from-- Wages and salaries	Off-farm income from-- All other
		Dollars		
Farm profit:				
$10,000 or more	20,120	+16,150	2,640	1,880
Farm loss:				
$5,000-9,999	7,720	-6,910	9,030	6,230
$10,000 or more	21,700	-22,750	19,300	27,800

Source: Based on U.S. Bus. Tax Returns, 1963, Adapted from Reinsel (69. table 6, p. 14).

losses. The significance of the data can be seen more clearly by omitting this detail. He also breaks my "all other" into dividends, interest, nonfarm sole proprietorships, partnerships, and "other." This detail is of interest but not of major importance to the topic being considered here. An important point to note is that his "other" and my "other" include sales of farm and nonfarm capital assets. Total capital gains can be separated from other income, but capital gains from agriculture alone are not reported.

One further point should be made. As noted on page 41, IRS data on net farm profits show only about a third of the USDA estimate of net farm income after rough adjustment in USDA data for differences in concept. Thus, many of the losses reported to IRS may, in a sense, be paper rather than real. Information on this point may become available when the USDA study of 1968 tax returns is completed.

Table 12 shows detail with respect to the amount of wages and salary earned by individuals on farms. Of the individuals reporting a profit of $10,000 or more from farming, 86.6 percent earned less than $5,000 in wages and salaries. Of those showing farm losses of $5,000 to $9,999, 29.5 percent showed earnings of $10,000 or more. Of those with losses of $10,000 or more, 47.6 percent had wage and salary earnings of $10,000 or more. Clearly, a large farm loss is a sort of status symbol.

Reinsel (69, pp. 7, 11) said,

"An increase in Federal farm income tax returns between 1953 and 1955 seemed to reflect the extension of social security coverage to farmers in 1955. Qualifying for social security coverage may have increased the total number of individuals filing farm tax returns by as much as 10 percent. Some of those reporting under the gross income option available to low farm taxpayers would not have filed a tax return otherwise. Optional reporting for social security probably also contributed to the greater number reporting net farm losses for Federal income tax purposes. . . .

Table 12.--Number and percentages of individuals with farm income who reported wages or salaries of specified amounts, by amount of farm profit or loss, 1963

Farm profit or loss	Number	Percentage earning wages or salaries of --				
		Less than $2,000	$2,000-$4,999	$5,000-$9,999	$10,000-$24,999	$25,000 or more
	Thousands	Percent				
Farm profit:						
$10,000 or more	12	71.1	15.5	7.4	4.5	1.5
$5,000-9,999	45	71.6	17.1	8.2	2.7	.4
$2,000-4,999	162	67.9	19.6	10.3	1.9	.3
$1,000-1,999	166	53.7	28.4	14.6	3.1	.2
Less than $1,000	454	38.4	33.5	23.7	4.2	.2
Farm loss:						
Less than $1,000	462	18.5	34.4	40.1	6.6	.4
$1,000-4,999	269	13.9	28.1	44.5	12.4	1.1
$5,000-9,999	20	24.2	24.2	22.1	21.8	7.7
$10,000 or more	11	21.4	10.8	20.2	22.3	25.3

Source: Based on U.S. Bus. Tax Returns, 1963. Adapted from Reinsel (69, table 7, p. 15).

He also gave another reason for increased reporting of farm losses:

"Some low-income farmers who have recently begun to earn taxable nonfarm income may find it more advantageous to report their farm losses now than in earlier years when they had no taxable nonfarm income. . . . Income taxes are generally withheld from nonfarm wages and salaries even though no taxes may be due when the individual files his tax return. When filing for a refund, the taxpayer may also report small amounts of farm income and small farm losses that he might not be required to report if he had no off-farm income."

Such losses and gains would probably be for the small amounts that were omitted from table 11.

Typical Types of Off-Farm Work

Hathaway and Waldo (33) made a detailed study of multiple jobholding by farm operators, based on continuous information available for a 1-percent sample of people covered under social security. The following types of farmworkers were identified:

a. Wageworkers

b. Farm operators

c. Multiple job wageworker (both farm and nonfarm in a given year)

d. Farm operators with nonfarm wages

e. Farm operators with nonfarm self-employment

The study said (pp. 5-6),

"The most frequent source of off-farm wage employment was some unit of government. . . . Most of these jobs were only temporary or part-time; the earnings from them were very low, and the year-to-year continuity also was relatively infrequent. . . . (For) younger farm operators . . . off-farm employment was of a more regular nature. . . . For most farm operators, off-farm wage employment is a seasonal or occasional matter. . . .

"Multiple jobholding by farm operators falls into three categories. For many it is a first step in changing occupations. These farmers leave farming if they are successful in obtaining and maintaining off-farm employment for a year or two. For another group of farmers, off-farm employment is a sporadic income supplement which occurs as a result of modest participation in the nonfarm labor force on a limited or irregular basis. Such persons are primarily farmers and probably will remain so, with some off-farm work on a limited basis as the occasion arises. A third group ... work off the farm regularly and substantially enhance their income as a result. The number of persons is small, however, compared to that of the first two groups. Thus, the proportion of multiple jobholders who can correctly be termed part-time farmers on a permanent basis is relatively small. . . .

"Multiple jobholding by farm operators . . . frequently was inversely related to age, with the incidence of off-farm wage employment especially high among younger farm operators. . . . Off-farm wage jobs were more frequently held by farm operators with lower self-employment income."

Regarding the amount of income received, the authors said (p. 32),

"In 1957, only 7.0 percent received more than $3,000 in wages from off-farm employment. This percentage rose to 9.1 percent in 1958 and in 1959 it was 11.2 percent. The increase from 1958 to 1959 was due in part to an increase in the upper limit on coverage."

Further details were given (pp. 17, 20):

"Three types of off-farm employment by farm operators can be identified in the OASDI data. They are nonfarm wage employment, farm wage employment, and nonfarm self employment. . . . It is not possible to identify either the nature of or quantity of earnings from nonfarm self-employment because all self-employment earnings are lumped together in the OASDI data. . . .

"The most common off-farm employment is some kind of wage employment, . . . mostly in nonfarm occupations. Less than 10 percent of the farm operators working off their farms worked for other farmers for wages. Almost one-third of the farmers classified as multiple jobholders had some income from nonfarm self-employment. . . .

"It is worth noting that one-fourth of all farmers with self-employment earnings in excess of $10,000 had self-employment income from nonfarm as well as farm sources."

Regarding farmers having nonfarm self-employment, it might be more accurate to say that these were nonfarmers who operated farms. These were concentrated in the Northeast, South Atlantic and Pacific regions and in the 35 to 54 age group, areas and ages for which nonfarm people might well wish to invest in farming.

Sources of Data

Hathaway and Waldo (pp. 22, 46) described the SSA data as follows:

"In the OASDI data, . . . for all those who have off-farm wage employment there is an individual employee-employer card for each wage job held by the individual. Among other things, it contains information on the type and location of the industry of wage employment. . . . It is necessary to deal with off-farm wage employment in terms of employers rather than employees in order to avoid multiple counts and tabulations. . . .

"The SSA maintains, for statistical and research purposes, a 1 percent continuous Work-History sample of persons covered by the program. . . . Once an individual is included in the sample, he remains in it. (But he may report only intermittently.) . . . For each individual in the 1 percent sample, there is certain information filed by his employer and stored by Social Security in an employee-employer file.

"Since each employer must file this information, an individual working for wages for more than one employer would have a separate employee-employer card for each employer in the year. Thus, the number of employers and the income received from each can be identified for all persons who worked as wage earners."

Income requirements to be included in the SSA data were discussed on page 24.

The authors concluded (pp. 49-50):

"Despite the limitations arising from the optional reporting method and the upper limit on covered earnings, it is believed that the income data in these statistics has advantages over those gathered by survey methods: First, because it is for tax purposes, it is more likely to come from records; and the penalties attached to misreporting are understood. Finally, although it is earned income rather than total income, the exclusion of transfer payments, etc., may reduce the under-reporting and thereby increase the interpersonal comparability.

"The greatest advantage of the OASDI sample is its continuous register nature. Hitherto, we have had only cross-sectional data for a given point in time. with no way of relating an

individual at one point in time to his situation at an earlier period. The OASDI sample makes it possible to follow a given group of individuals through time, thus indicating paths of change as well as its total dimension."

Edward Reinsel pointed out that, based on his study (69, table 5, p. 13), nearly half of the farmers had annual farm losses or profits of less than $400. Thus, unless they chose to report under the optional gross income method, they would not be in the social security data for that year. Moreover, based on my table 12 (adapted from Reinsel's table 7), many farmers would be tabulated in the social security data as nonfarm wage earners because tney have wages or salaries above the cut-off point, which through 1965, was $4,800 or less. Thus, the Hathaway and Waldo study may apply to only about two-thirds of all farmers--namely, those with farm incomes above $400 plus those electing to report on the basis of gross income but wages and salaries of less than the cut-off, plus those electing to report on the basis of gross income. 23/

Hathaway and Waldo (p. 9) indicated

"that the OASDI farm operators are roughly comparable to those defined as operators of commercial farms by the Census of Agriculture."

If we add the phrase,

"excluding those with wages and salaries above the Social Security cut-off of approximately $5,000 and the 'tax-loss' or 'hobby' farmers,"

they would be correct. I doubt whether they realize how many large-scale farmers are excluded. One has to run a fairly large farm to show a net loss of even a few thousand dollars.

In the 1964 Census of Agriculture, considerable detail was obtained on sources of off-farm income. The Introduction (87, p. LXII) shows that the following questions were asked:

"333. For each person living in house occupied by operator,

How much did this person receive or will he receive in 1964 from--

Col. 9. Wages or salary, commissions, and tips from all jobs before taxes and deductions, etc. ? (Do not report income from this farm.)

Col. 10. Working at own nonfarm business or professional practice (report net income after business expenses) ?

Col. 11. Social Security payments, pensions, veteran's payments, unemployment compensation, and welfare payments ?

Col. 12. Rent for farm and nonfarm property, interest, dividends, Soil Bank payments, oil leases, and other sources ?"

Unfortunately, no such information will be obtained in the 1969 Census of Agriculture. However, essentially similar information will be obtained in the 1970 Census of Population--not only for farm operator households, but for those with any farm income.

23/ This is estimated as follows for 1963: 1,542,000 individuals with net farm profits of $400 or less, (69, p. 13) less 500,000 who report on the gross farm income basis (560,000 in 1966), plus 100,000 with farm profits above $400 and wages and salaries above $5,000 (estimated from data in table 12) equals 1,142,000 individuals who were excluded. Total individual proprietors in 1963 were 3,319,000 (69, p. 8).

The following comments on information from IRS were made by Edward Reinsel. Only certain items are published in certain years. Thus, the latest available data similar to that in his study (69) were those that he used for 1963. Detailed data for 1965 are available with respect to farm businesses in (92) but not for individual people.

A tax model for 1964 and 1966 to date, covering a 1-percent sample of returns, is available on tape. This covers a sample drawn from individuals filing a schedule F (a) for whom farming was the major sources of income plus (b) those for whom some other source was the major one. Farm income reported on schedule C is combined with that on schedule F. A large amount of detail is shown for income and expenses. For research purposes, IRS will tabulate within specified classifications on a fee basis.

VIII. NONPRODUCTIVE FARMS

Much has been written about people who live in rural areas, but who derive only small amounts of income from farming. Some are partly retired. Some have good jobs or businesses in town but enjoy country living. Some (as will be discussed in the next section) tried to make a living off the farm but couldn't, and decided a poor living in the country was better than life in a city slum. And some are the rural poor who just never tried to be anything else. These groups are a part of this study chiefly because Census and USDA call them farmers.

The quotations that follow paint a picture of this diverse group of people and indicate some of these people's problems and the problems that are involved in deciding whether or not they should be called farmers.

In 1948, Bachman, Ellickson, Goodsell, and Hurley (4, p. 701) wrote,

"A broad distinction may be drawn between the farming units where the primary objective of the operator is obtaining an income from farming and those units that provide in the main a place of residence. In general, the nominal and part-time groups represent farms of this latter type, and the commercial and small-scale farms are of the former type."

In 1963, Taeuber (81, p. 17) commented,

"Many of the smaller farms give the present occupants an opportunity to use their labor and resources for subsistence or provide a base for substantial off-farm work. As farms, however, they make little contribution to total agricultural production, and many of them are likely to drop out of the farm inventory when the present operator can no longer continue farming."

This would suggest that the problem of whether or not these should be called farms will disappear in a few decades. Unfortunately, the solution is not that simple.

In the same year, Ducoff (16, p. 21) wrote,

"More than 90 percent of the labor force living in rural nonfarm areas customarily have been employed in occupations other than agriculture. . . . of the employed population living on farms in 1960 only 60 percent were engaged in agriculture and 40 percent in nonagricultural occupations."

Concerning families leaving agriculture, Allee (2, p. 1279) said,

"Over 11 million acres have left farming since the turn of the century. Typically, the families that last made their living from this land leave with very low incomes. Including off-farm work, 60 percent, in a recent sample, had less than $3,000 yearly family incomes. They frequently lived by liquidating capital. Indeed, they have little in the way of assets either to convert their land to other uses or to start a new way of life. . . .

"The low rate of return seems to suggest that here are resources that should have a better use elsewhere. Yet the low apparent opportunity costs of the resources suggest that these returns are efficient."

In 1963, Higbee (38, pp. 12, 22) wrote,

"Tens of thousands of rural indigents are called farms even though they cannot raise enough to feed themselves properly. . . .Lack of city opportunities keeps a lot of farmers on the land who would like nothing better than to get off of it."

He continued (p. 48),

"Because labor income is so low in agriculture, the difference between farmers who are poor and those who are well off is due chiefly to their capital resources and therefore to the amount of income which they derive from capital invested. . . . Today it takes real wealth to be a successful farmer."

Ruttan (71, pp. 1108-1110), writing in 1966, said,

"An unanticipated by-product of the effective economic and cultural integration of commercial agriculture into the national society is the emergence of a dual structure in the well-being of rural families. There is no sector of American agriculture that can be properly classed as a peasant sector. There is, however, substantial poverty in rural areas. Rural income is far less equitably distributed than urban income. The poverty problem has in the past been reflected primarily in terms of occupational, age, racial, and regional dimensions.

"First, consider the occupational dimension. Incomes of hired farm workers are substantially lower than incomes of farm operators. The hired farm labor force is the most heterogeneous employee group in the American economy. Incomes of full-time hired workers on commercial farms have increased rapidly. Incomes of part-time and migrant farm workers, however, have not kept pace with the income of either full-time farm workers or farm operators. . . .

"The rapid growth in the size of commercial farms has also helped create an age dimension of the poverty problem. Many older farm operators have been caught in a situation where they have neither the financial resources to expand their farm operations nor the labor skills necessary to find remunerative off-farm employment.

"There also is a racial dimension to the poverty problem. Roughly half of the farm families that fall in the poverty class are located in the South. Although the median income of white farm families in the South is only about half that of white urban families in the South, it is almost twice as high as the median income of nonwhite farm families. . . .

"Substantial numbers of the least mobile portion of the farm labor force remain stranded in rural underemployment--on small farms, in part-time employment, and in barely remunerative nonfarm employment.

"Increasingly, this hard-core rural poverty must be analyzed in terms of the social structure of the low-income segment of society rather than in terms of the economic structure of rural areas. It is transmitted in part through the lack of cultural integration inherent in the dual structure of rural society interacting with the other poverty dimensions, particularly the occupational and racial dimension."

In 1963, Grove (30, pp. 282, 284) commented,

"Concern for the proper definition of a farm has always been one factor underlying the demand for economic classification of farms. The rather common feeling that so-called noncommercial farms should not have been covered by the farm definition in the first place is clearly evident in a recent statement that the total number of farms still 'includes more than a million not-really farms'. But the dividing line between commercial and noncommercial farms is much more difficult to establish in any meaningful way than is the dividing line between farms and other tracts of land. Thus, to accept the new dichotomy as a substitute for a realistic definition of a farm is to jump from the frying pan into the fire.

"It is evident, therefore, that another important part of the solution to this problem lies in the development of a more acceptable definition of a farm for census and other purposes.

"In this endeavor, there will be important arguments on both sides of the question of cutting off small farms at the lower end of the value-of-sales distribution. For most purposes these small farms are simply a nuisance, and it would be convenient to get rid of them. But the whole trend of modern agricultural development is toward the blending of farm and nonfarm activities, and toward the increasing importance of nonfarm activities as a source of income from farm families at all levels of farming activity.

"Thus, to cut off the small farms simply because of their income from nonfarm sources would be to fly into the face of current trends, with the result that the scope of agriculture as traditionally defined could be severely curtailed. From another standpoint, largely statistical, there is also the question of where these small farms could go if they were thus drummed out of agriculture. . . .

"Well-designed government price support and other programs, combined with economic growth in the nonfarm economy, provide the salubrious economic climate in which the small farmer can become either a large farmer or a nonfarmer--and without which he is most likely to stay a small farmer. Similarly, the measures commonly urged to help small farmers leave agriculture are likely to be most effective if they are available to all farm people without regard to size of farm or relative prosperity."

In 1962, Koffsky (50, pp. 631-632) wrote,

"The concept of adequate family farm is not very meaningful when applied to over half of our farms. It does not help much in our thinking with respect to part-time or part-retirement farms or those farms at the lower range of commercial farms. We know that nonfarm income is generally important to farm families at all levels of farm activity. The 1955 Survey of Farmers showed that while 80 percent of noncommercial farms had nonfarm income, about 60 percent of the commercial farms participated as well. . . . We do need to keep in mind that over the next 10 to 15 years, some 80 to 90 percent of our farm youth will not find opportunities for adequate incomes in farming alone."

At the 1969 Agricultural Outlook Conference Edwards and Beale said,

"To summarize, demographic conditions in rural areas vary substantially from one part of the country to another. There simply is no

national generalization that is uniformly applicable to the status and trends of rural population except this one! Many areas have seen an improvement in their demographic picture since 1960, through increased ability to retain population. But others have not. The major problem populations of rural America as measured by such factors as income, housing, education, and disadvantageous ethnic or cultural minority status are still predominantly in the South. But the major problem rural areas as measured by recent population loss and migration trends are now in the Central Plains and Mountain West." 24/

Tables 22 and 23 in the appendix indicate the percentage of farms and percentage of farm products sold that would be eliminated from the farming sector with given levels of minimum sales required for qualification as a farm. These data are shown for States, based on the 1964 Census of Agriculture.

24/ Op. cit., p. 12.

IX. MIGRATION INTO AND OUT OF AGRICULTURE

Hathaway and Perkins (36) made an extensive study of in and out migration for agriculture, based on analysis of SSA records. Definitions (36, pp. 185-186) were as follows:

"Mobility is defined as moving from some form of farm employment coverage to exclusively nonfarm employment. Migration is defined as a change in location of employment, the smallest change being from one county to another.

"Employment status is defined as either farm or nonfarm. Within the farm employment classification are those who are exclusively farm wageworkers, those who are exclusively self-employed farm operators, and those who combine one of these categories with some form of nonfarm employment."

The off-farm mobility rate is the percentage of farm-employed persons in a given year who changed to exclusively nonfarm employment in the following year. This rate was computed for each of the six consecutive 2-year periods during 1957-63. It averaged 14 percent a year for the United States.

"Since a very high proportion of farm-nonfarm movers returned to farm employment in subsequent years, the net rate of decline in the farm labor force is very much lower."

Edward Reinsel and Calvin Beale of USDA believe that a substantial part of the movement into and out of agriculture found by Hathaway and Perkins instead represents changes in reporting status of farm operators and laborers under SSA regulations. Possible explanations have been indicated in previous sections. Beale says the in-and-out movement is high for farm laborers but not for farm operators. He also points out that the majority of farm youth who leave the farm never were employed in agriculture. Hence, they would not be included by Hathaway and Perkins.

I believe this criticism is valid, but I am not sure (nor did Reinsel or Beale indicate this) that it completely invalidates the Hathaway and Perkins study. Hence, I give some of the study's major conclusions (36, pp. 186-212).

Gross off-farm mobility rates averaged 34 percent for people under 25 years of age and 47 percent for people combining farm wagework with a nonfarm job. Thus, if they made good in the off-farm job, they left farming. The percentage was fairly uniform at 12 to 19 percent for earnings while farm employed, up to $7,499 a year, but dropped to 8.6 percent for higher earnings.

"Off-farm mobility rates were lower in counties where family incomes were low and . . . lower in counties with the least commercialized agriculture. . . .

"An earlier study by the authors showed that a high rate of national unemployment was the most important single impediment to mobility out of agriculture. . . .

"Farm employment status proved to be the major determinant of off-farm mobility rates,"

the rate being significantly higher for farm wageworkers than for farm operators. Also,

"multiple-job holding greatly facilitates complete farm to nonfarm mobility."

Adjustments for other factors reduced the influence of age, but younger people still had higher off-farm mobility rates.

"The probability of moving out of agriculture declines rapidly with age. . . .

"During the years 1957 to 1963 the number of in-farm movers averaged close to 90 percent of the number of off-farm movers. Moreover, it has been established that in-farm movers predominantly are persons who had formerly been employed in agriculture, but who on leaving the industry had failed to establish themselves in nonfarm jobs and had moved back into farm employment. . . .

"In-farm mobility rates among Negros were relatively high in the North Central region, probably because southern Negro migrants to the large cities of that region tended to turn to local farm labor markets when they failed to find nonfarm jobs. . . .

"Mobility into agriculture in low income counties and in counties with a low proportion of commercial farms typically was only slightly less than mobility out of such counties. . . . By contrast, in higher income counties and in counties with the most commercialized agriculture, the in-farm mobility rates were clearly below the off-farm rates. . . .

"The normal operation of labor markets does not serve to reduce income disparities within agriculture or between persons employed in farm and nonfarm occupations. . . .

"For the nation as a whole, an average of 73 percent of all movers remained in exclusively nonfarm employment, 18 percent returned to farm employment, and 9 percent failed to attain (Social Security) coverage. . . . Persons who migrated in the process of off-farm mobility were most likely to migrate again in the following year. . . .

"The majority of off-farm movers did not go to cities of 50,000 or over. . . . The evidence adds support to the contention that the farm labor force tends to rely on local sources for nonfarm employment opportunities. . . .

"It is those farm-employed persons who rely on small local labor markets for a nonfarm job who have the lowest probability of successfully moving out of farm employment. . . .

"On the average, only 63 percent of the in-farm movers were still farm employed a year later, and over 20 percent had returned to exclusively nonfarm employment. Moreover, a higher proportion of migrant in-farm movers remained in agriculture although most of them did not remain in the same county. . . .

"The proportion of in-farm movers, particularly migrant in-farm movers, who remained in farm jobs for at least two years was significantly less than the proportion of off-farm movers who remained in nonfarm employment. . . .

Thus, a good part of farm wageworkers are part of a floating population that floats to wherever unskilled workers are needed.

"Those characteristics which cause an individual to be poor in farming are likely to have the same effect in nonfarm employment. . . .

"The mobility process as it has worked would seem to operate to widen the income gap

between commercial agriculture and the low income persons in farming. It would also appears to widen the gap between the Negroes and whites who leave farming, and between the income groups after they leave their farm jobs. Thus, much of the low income problems in agriculture may be transferred to rural nonfarm and urban poverty by the mobility process, rather than eliminate it. . . .

"The problem, then, would appear not to devise policies to increase the number of farm people who try nonfarm employment, but to develop policies whereby the proportion who succeed in their efforts at occupational mobility is substantially increased."

Waldo (95, p. 1244) emphasized this point also. He said,

"A major impediment to greater net out-migration from agriculture is the failure of those who leave to retain nonfarm jobs."

Hathaway and Perkins (36, pp. 349-351) continued,

"The highest relative incidence of back-movement occurred among old workers, Negroes, and farm operators, and into counties which had the least commercialized agriculture and the lowest family income levels, and, with some exceptions, which were more remote from large urban areas. The rationale for mobility into agriculture must have been largely economic. Those who returned to farm work had had both lower rates of pay and more unemployment in their nonfarm employment than out-movers who remained in nonfarm jobs, and on the average in-farm movers experienced immediate increases in earnings when they returned to agriculture. . . .

"The net out-migration statistics report total population movements, including many not in the labor force because of age and lack of local employment opportunities, whereas we measured the mobility of employed persons. . . .

"The earning capacity of farm people in nonfarm employment may have been overestimated. This conclusion, of course, has extensive implications ranging from revisions of 'parity' income to vastly expanded employment services."

Edwards and Beale updated some of the Hathaway and Perkins findings. They said,

"During the 1950-60 decade, a net annual average of 1.0 million persons left farms or became nonfarm through cessation of farming operations on their places. For the period 1960-68, the comparable figure has been 3/4 million. This is still a high percentage rate of loss given the reduced size of the farm population, amounting to a net annual loss through outmigration and reclassification of about 6 percent. There is some evidence that the decline in farm population and employment did slow down between 1967 and 1968.

"The decrease in Negro farm residents has been particularly sharp, with the near demise of the cotton tenant system and the failure of most sons of Negro farm owners to follow their fathers' occupation. The Negro farm population has declined by nearly three-fifths in just 8 years.

"But with the number of farm residents now down to 10.5 million, farm people comprise not more than 20 percent of the total rural population. Thus, decreases in farm population cannot as readily affect the trend of the total rural population in the future as they did in the past. The rural total is now more affected by the combination of such trends as employment in the off-farm phases of agriculture--e.g. farm supply, farm services, transporting, and processing of food products--mining, lumbering, rurally located manufacturing industries, employment in urban centers

within commuting distance of rural people, development of rural recreation and retirement areas, defense spending, and various lesser factors." 25/

Upchurch made this significant comment:

"Little commercial farms with limited resources simply do not offer a sufficiently attractive economic opportunity for people, especially young people. Older farmers now on small farms may very well continue until they retire or pass away. Their sons or grandsons are not likely to maintain the same farm unit. They are more likely to combine 'the old home place' with two others to make a farm big enough to be an attractive economic opportunity or they are likely to seek opportunities outside of farming." 26/

25/ Op. cit., p. 9.

26/ Op. cit., p. 3.

X. CORPORATION FARMS AND LARGER-THAN-FAMILY FARMS

Trends in Numbers and Output

Upchurch had an interesting comment on the size of farms in American agriculture. He said,

"The biggest farms (those with over $40,000 in gross sales) tripled in number between 1949 and 1964, but the percentage of gross sales only doubled. The bigger farms (those with gross sales of $20,000 to $39,999) increased in number by 2-1/2 times in the same period, but their percentage of gross sales increased only 80 percent. The merely big farms (those with gross sales of $10,000 to $19,999) increased in number only 40 percent, and their proportion of gross sales just held its own.

"The odd fact is that the average size of all size classes of farms has been moving upward. If you array all farms by size and divide the total into quintiles, you find that the upper two-fifths of our farms have produced about 80 percent of total output. The proportion has changed little for many years. The lower two-fifths of our farms consistently have produced about 10 percent of total output. The middle quintile has produced the remaining 10 percent with little change over time. Although farms have become fewer and larger, the relative size distribution among farms remains surprisingly constant."--27/

As will be shown later, corporation farms are not necessarily big farms. In this section, data are presented relating to (a) corporations engaged in agriculture and (b) unusually large farms. Certain information will relate to (a) corporation farms that are large and (b) corporation farms that are modest to small.

Table 13 shows the percentage of farm returns and receipts from various types of firms in 1965.

Table 13.--Percentage distribution of farm tax returns and of receipts, by type of firm, 1965

Type	Returns	Receipts
	Percent	
Individual proprietors	95.8	76.9
Partnerships	3.6	10.5
Corporations	.6	12.6
Total	100.0	100.0

Source: Bus. Income Tax Returns, 1965 (92, p.10).

In an undated mimeographed report, Scofield showed data on number of corporations in the agricultural, forestry, and fisheries group, and total assets and business receipts for all corporations and those filed under

27/ Op. cit., p. 2.

the special provisions for small businesses--the so-called 1120-S corporations. 28/ Figures in table 14 relate to all active corporations in this group. Table 15 shows data for 1963-65 for each of these three categories, plus data for agricultural services. By noting the relative importance of farms to the total for farms, forestry, and fisheries, one can obtain an idea as to the likely importance of farms for the data in table 14. As pointed out by Scofield, 29/

"Firms which did not receive the largest percentage of their total receipts from the sale of farm products, but which also had some farming activity, would be excluded from the count of farms. There are a significant number of firms having integrated operations which are classified under other industry codes such as meat products, canning, grain mill producer, etc."

As can be seen from table 14, the number of corporations has risen steadily and in 1965 was 2.8 times the number there were 10 years earlier. Of the total number, about a fourth are filed under the special provisions for small corporations. Total assets of small businesses are about one-sixth of the total for all corporations in this industry group. Business receipts per return are slightly less than half those for all other corporations.

Table 15 shows that in 1965 about 90 percent of the corporations engaged in agriculture, forestry, and fisheries were in agriculture. The number of corporations engaged

28/ Tax Returns for Agricultural Corporations, 5 pages.

29/ Op. cit., p. 1.

Table 14.--Number, business receipts, and total assets of active corporations classified as agricultural, forestry, and fisheries, by type of corporation, 1949-65

Year	Number		Total assets		Business receipts per return	
	Small 1/ business	All	Small 1/ business	All	Small 1/ business	Other
	Thousands		Billion dollars		1,000 dollars	
1949		6.8		1.9		
50		7.1		2.3		
51		7.6		2.5		
52		7.7		2.4		
53		8.3		2.4		
54		8.8		2.6		
55		10.3		2.6		
56		11.0		2.7		
57		11.8		2.9		
58	.5	13.9	.1	3.5	138	246
59	1.5	15.6	.2	3.6	113	249
60	2.5	17.1	2/	4.1	144	263
61	3.4	19.0	2/	4.7	154	292
62	4.1	22.1	.7	5.2	144	299
63	5.0	23.3	.8	5.9	174	362
64	6.2	25.9	1.0	6.5	119	265
65	6.8	27.6	2/	6.8	2/	2/

1/ Returns filed under the special provisions provided for small businesses form 1120-S. 2/ Not available.

Source: See table 15.

Table 15.--Active corporations classified in specified industry groups, 1963-65

Year	Farms	Agricultural services	Forestry	Fisheries
		- - - - Thousands - - - -		
1963	16.2	5.6	.5	.9
64	17.6	6.4	.6	1.3
65	1/18.5	6.7	.8	1.5

1/ Of these, 4,862 were in the small business group.
Source: Compiled by William Scofield from Internal Revenue Serv. data.

in agricultural services was slightly more than one-third the number of those in agriculture.

Table 16 shows the percentage distribution, by size of business receipts, for each of the three types of firms. There is a larger percentage of large firms among partnerships than among individual proprietors and among corporations than among partnerships. Of the 1,394 corporations with receipts of $500,000 or more, almost half were in the $1,000,000 or more group.

Table 17 shows the total number of large farms, by size group, for 1929, 1959, and 1965. A sixfold to twelvefold increase occurred for each of the size groups shown during the three decades between 1929 and 1959. The increase between 1959 and 1965 for the different groups ranged from 6 to 14 percent.

Higbee (38, pp. 49-50) described the very large farm firms as follows:

"At the very pinnacle of the agricultural pyramid are 1,200 farms, each of which markets over a half million dollars worth of produce annually. These 1,200 elite, which are an infinitesimal one-thirtieth of one percent of all American farms, produce almost as much as the bottom 1.6 million census 'farms' which are 44 percent of the total. . . . In short it took the produce of 1,000 average 'farmers' at the bottom to equal the sales of 1 genuine farmer at the top.

Table 16.--Percentage of firms with business receipts of specified sizes, by type of firm, 1965

Type	Size of business receipts					
	Under $50,000	$50,000-99,999	$100,000 or more	$100,000-199,999	$200,000-499,999	$500,000 or more
	- - - - Percent - - - -					
Individual proprietors	97.0	2.1	0.9	---	---	---
Partnerships	81.2	11.1	7.7	5.1	2.2	.4
Corporations	1/46.8	18.9	34.3	13.7	12.3	8.3

1/ Of these, about a third were in each of the three groups -- Under $10,000, $10,000-24,999, and 25,000-49,999.
Source: Bus. Income Tax Returns, 1965 (92, pp. 111, 129, 258).

Table 17.--Number of farm firms in specified size groups, 1929, 1959, and 1965

Total receipts	Number			Ratio of --	
	1929	1959	1965	1959 to 1929	1965 to 1959
$100,000-$199,999	1,626	14,201	15,132	8.73	1.066
200,000-499,999	678	4,570	4,924	6.47	1.077
500,000-999,999	82	800	880	9.76	1.100
1,000,000 or more	34	408	463	12.00	1.135

Source: 1929 and 1959, Nikolitch (60, table 3), 1965, Bus. Income Tax Returns, 1965 (92, p. 39).

"If only 9 percent of the nation's farms were as productive as the top 3 percent, there would be no need for crops from the other 91 percent. As it is, the top 3 percent produce more than the bottom 78 percent."

Raup (67, p. 243) told of a recent study of corporation farms in Minnesota. He said,

"A survey conducted by the Department of Agricultural Economics at the University of Minnesota in 1958-59 disclosed a total of 103 farm corporations licensed to do business in the State, of which 90 were active. This study is being repeated, ten years later. Our preliminary data show an increase to approximately 340 farm corporations as of July 1, 1968.

An interesting aspect of ths study relates to the dates of incorporation. One-fourth of the firms were incorporated during 1895-1954, one-fourth during 1955-59, one-fourth during 1960-64, and one-fourth in the 3-1/2 years from January 1, 1965 to mid-1968. About two-thirds of the firms had a capital stock of less than $150,000; one-third were basically family farms.

Peterson and Vollmar (65, p. 118) made the following comment on likely trends for large farms. They said,

"The historical trend toward fewer and larger family farms is well known. Our opinion is that this trend will continue with its impact on rural communities. The growth of nonfamily corporation farming would hasten the decline of small agriculturally-oriented towns in the Great Plains and the Corn Belt States. These towns are in serious trouble in either case since they are being bypassed when operators of large family farms sell their products and buy goods and services and would also be bypassed for items bought or sold by factory farms. The main difference is that purchasing agents on factory farms would go directly to manufacturers for production items, while operators of large family farms are likely to go to towns of 25,000 or more population in their immediate trading area."

Recent USDA Survey of Corporation Farms

Scofield and Coffman conducted an extensive survey of corporation farms during 1968. A preliminary report (74) was issued in August 1968 covering data for 22 States. Preliminary Report II, covering 25 additional States (Northeast, Appalachian, Southeast, Delta States, and Southern Plains regions) was released in April 1969. This was issued as Agricultural Economic Report 156. Information for 47 States (excluding California, Alaska, and Hawaii) was summarized by Upchurch (op. cit.). His major conclusions

were given on page 17. A final report summarizing the results for all 50 States will be issued later. In the paragraphs that follow, major conclusions from the preliminary report covering 22 States are summarized (74, pp. iv, 1-7).

Of the total corporations in the States tabulated, 71 percent were family corporations and another 10 percent were individually owned. Only 19 percent had diversified ownership.

"The incorporated family farm businesses . . . typically . . . are larger-than-average farms and ranches. In the Lake and Corn Belt States, the average acreage per corporate county unit was a little more than three times the average of all commercial farms. Average acreages in the Mountain States were substantially larger than for all farms, but not much greater than for all livestock ranches. In Montana, for example, all corporate farms and ranches averaged 11,500 acres, compared with 2,900 for all commercial farms and about 7,000 acres for ranches only. . . .

"13 percent (of the corporations) had one or more agribusiness interests besides farming, and 20 percent had other business activities not related to agricultural operations." Of the latter, "It seems possible that many of the farms are individually owned and are not included within the corporate organization of the major business activity. . . .

"Many of these larger operations (sales of $200,000 or more) involved cattle feeding, or turkey, egg or broiler plants. The production of canning crops, such as green beans and peas, and other specialty crops, such as cranberries and mint, accounted for some of the larger operations in the Lake States. . . .

"For the 22 States, 75 percent of the firms having sales of $100,000 to $200,000 were family corporations. This proportion declined to 68 percent for units having $200,000 to $500,000 in sales and to 58 percent for those with sales of $500,000 or more. About one-third of these largest operations were classified as other (i.e. neither individual nor family) corporations. However, slightly less than 150 such operations were found in the survey."

Some of the incorporated farms producing large acreages of canning crops were under contract to canning plants, while others were operated directly by packing firms.

"It appears that livestock operations on corporation farms were more prevalent and of substantially larger scale than for all farms in each of the regions. . . . Cattle feeding enterprises also were substantially larger than for typical farmer-feeders in most regions. . . . Most of these were commercial feedlot operations in Nebraska and Kansas." (Texas was not included in this preliminary report.)

"Although relatively few in number, poultry enterprises were large in all regions. For commercial egg production, the number of laying hens ranged between 50,000 and 100,000 per county unit in the various regions. The average turkey operation in the Lake States had nearly 200,000 birds, and annual volume of broilers was nearly 400,000."

Table 4 in their study indicated that based on acreage, each type of corporation farm was a "large" farm. For example, in New Mexico average acreage for "other" corporations was 61,819 and for family corporations was 37,020. Commercial farms (as classified by Census) averaged 5,441 acres. For most regions, differences in size for the three groups of corporations--individual, family, and "other"--were not large. Table 18 shows average acreage by region for all corporation farms versus all commercial farms.

In terms of amount of land controlled, corporations are of major significance in only

Table 18.--Average acreage per farm for all commercial farms and all corporation farms, 22 States, 1968

Region	Commercial 1/	Corporations	Ratio, corporation to commercial
	- - - - Acres - - - -		
Lake States	245	792	3.2
Corn Belt	273	918	3.4
Northern Plains	853	4,418	5.2
Mountain	2,557	11,267	4.4
Pacific 2/	934	2,732	2.9

1/ Farms with gross sales of $2,500 or more, projected from the 1964 Census of Agriculture. 2/ Does not include California.
Source: Adapted from (74, table 4, p. 13).

two areas--the Mountain States, where they have 15.6 percent of the total, and Washington and Oregon, where they have 5.2 percent. In the other three regions, they control less than 2.2 percent. They undoubtedly control a large proportion in some of the States omitted from this first preliminary report.

Family or Individually-Owned Corporations

Scofield said,

"Tax legislation was passed in 1958 which extended most of the benefits of the general corporation to small business generally without the double taxation feature that prevailed for corporations prior to that time. Such corporations received the same tax treatment as partnerships." 30/

These are the so-called sub-chapter S or 1120-S corporations. Incorporation by small businesses was stimulated by this new legislation. To qualify as a small business corporation, a firm has to be a domestic corporation with no more than 10 shareholders, each of whom is an individual (or estate). It can have only one class of stock. It cannot receive more than 20 percent of its gross receipts from personal holding company income nor more than 80 percent of its gross receipts from sources outside the United States (92, p. 302).

Scofield and Coffman (74, pp. 1-2) commented,

"Incorporation of (family) farms offers more flexibility in planning for continuity of the business between generations and for softening the impact of (inheritance and gift) taxes."

Some local businesses were corporations and operated in processing and trade and in farming. These do not differ particularly from the family corporation farms. In conversation, William Scofield pointed out that some farms reported as being corporations in the USDA survey were not really corporation farms. Instead, they were owned by an individual who also owned an incorporated nonfarm business.

Harl (32, pp. 155-156) wrote,

"A partner in a partnership or the proprietor in a sole proprietorship may become an employee upon incorporation of the farm business."

30/ Op. cit., p. 1.

This practice is one reason why farm corporations may not show high returns. Profits may be paid chiefly in the form of salaries.

He continued,

"Employee status automatically brings higher social security taxes, along with eligibility to participate in tax privileged fringe benefits such as group term life insurance, pension plans and profit sharing plans. With a fixed annual salary, farm employees may become eligible for higher social security benefits than a fluctuating income would produce. Retirement planning may be facilitated for employees since earnings received as dividends or interest do not reduce social security benefits."

William Scofield believes that most family groups incorporate to reduce inheritance taxes. If the value of the farm exceeds about $400,000, taxes are reduced by incorporation. Recent declines in number of partnerships probably reflect a shift to corporations. A large group might form several corporations to keep net income of each below $25,000. (Corporations pay an income tax of 22 percent on their first $25,000 of net income and 48 percent on the balance.) For example, they might rent machinery and land from their own subsidiary. Legislation to prevent this has recently been passed.

To summarize this section, single individuals or families incorporate chiefly for one or more of three reasons: (1) To permit farm operators to secure fringe benefits that normally are reserved for workers earning wages or salaries, (2) to provide continuity in control of the farm from one generation to another, and (3) to reduce inheritance taxes. Since 1958, firms have been encouraged to incorporate by the special tax provisions for those qualifying under subchapter S of the Internal Revenue Code. Some of these individually owned or family corporations are small; others are very large.

Large Corporations Investing in Agriculture

Scofield and Coffman (74, p. 3) point out that most corporation farms of the sort that have caused public concern--that is large operations that are frequently publicly owned--are in broilers, eggs, and turkeys. Such corporations are likely to expand into hogs and cattle. Many large-scale cattle feedlots are in this category.

In 1966, Goetsch wrote,

"There seem to be three main reasons why firms are showing an increasing interest in agriculture: (1) To develop and protect a share of the market for farm input items which they have to sell, (2) To acquire farm products for processing and distribution at a lower cost or on a more regular schedule, (3) To make a profit directly from agricultural production."31/

DuBois (15, pp. 81-82) described the proposed operation of CBK Industries in agriculture. He said,

"Its land will be divided into 10,000-acre units, each supervised by a resident manager paid $6,000 to $9,000 per year. Working for each manager will be four other men whose families also will live on CBK land. A superintendent, with a college degree or equivalent agricultural experience, will oversee two or three such units at a salary of up to $18,000."

According to DuBois, CBK hopes to acquire up to 80,000 acres, scattered from Texas to Minnesota, within 5 years.

He continued,

"CBK workers will operate their field equipment 24 hours a day during crucial periods

31/ Forest L. Goetsch. Big Corporations Invest More In Agriculture. Reprinted from Doane's Agricultural Report, Jan. 1966.

such as planting and harvesting. Machines will be moved from farm to farm, following the planting and harvesting seasons as they move from south to north. . . . To ease the impact of price fluctuations, CBK plans to build storage facilities on and near its farms so that it can store grains during periods of low prices and sell them when prices improve."

Gross (28, p. 16) described large farms in Iowa. He said,

"There are many of these farm corporations in the up to 2,000- and 3,000-acre size. Some are Iowa based using their own capital, others with outside capital financing. Most of these have been formed in the last two or three years. Caught up in what is seemingly a never-ending race in the cost-price squeeze, the access to large amounts of capital becomes more and more the determining factor in who stays in farming and who gets out."

Raup (67, p. 240) said,

"Capital gains in agriculture are particularly attractive to investors that seek maximum security, are afraid of inflation, and would like to reduce their present level of income by converting annual income into capital gain. The opportunity to do so in agriculture is substantial. . . . We assume that the ordinary farmer would like to manage his farm in order to maximize current income. The very wealthy farmer is, instead, likely to manage his farm to maximize capital gain because that reduces his tax rate from his marginal rate of 50 or 60 percent to a maximum of 25 percent. That advantage, I am convinced, is one of the major attractions to nonfarm capital now investing in agriculture, some of which is incorporated. In other words, this lies behind some of the trend toward farm incorporation today."

Large corporations that operate farms fall chiefly into one of the following groups:

(a) Meatpackers who operate feedlots to supply their needs when cattle from other sources are scarce.
(b) Fruit and vegetable or poultry processing firms that grow part or all of their requirements directly instead of using contracts.
(c) Suppliers of inputs (such as feed-mixers) who want to assure an outlet for their products.
(d) Large conglomerates that appear to feel that profits can be made in agriculture.
(e) Firms that cater to wealthy non-farm people who wish to convert ordinary income into long-term capital gains for tax reasons. These firms are discussed in detail in the next section.

Tax-Loss Farming

The National Farmers Union has tabulated data relating to the number of individuals reporting profits and losses from farming by groups related to income from all sources. Radcliff (66, pp. 24 25) discussed this. He said,

"Out of 3 million farm income tax returns in 1965, there were 680,000, or 22 percent, filed by people who deducted farm losses from nonfarm income and still had income tax to pay on their nonfarm income. That included 86 percent of all persons who paid on $1 million income or more, 85 percent of those who had $500,000 to $1,000,000 income, and 73 percent of those with $100,000 to $500,000 income.

"Senator McGovern declared that these non-farmers are avoiding $200 to $400 million in Federal income taxes by going into farming, claiming farm losses as an offset to other income, and later recapturing the income as a capital gain subject to a much lower tax rate. . . .

"I think these figures point out the two major reasons nonfarm interests, and especially corporations, are entering farming:

(1) Land has been a good investment, increasing nationally at the rate of five percent or more annually
(2) To give these nonfarm interests a tax advantage through their farming operations."

Table 19 shows some of the data to which he refers.

In a feature story in the Wall Street Journal, Buel (10, pp. 1, 12) described certain firms that have been organized chiefly to assist individuals in converting ordinary income into long-term capital gains. He said,

"At least eight corporations, plus dozens of individual farmers who also manage farm property for a fee, now handle well over $100 million of investments for more than $5,000 people. Oppenheimer Industries Inc. of Kansas City, the oldest and largest of the companies, has doubled its clientele to 400 in four years. In December, it was managing 220,000 head of cattle for them and had orders for another 20,000 head it couldn't fill immediately.

"Oppenheimer, the principal subsidiary of Atlas Acceptance Corp., Kansas City, began managing cattle in 1952, mostly for movie stars. Over the years, though, the focus of its appeal has shifted to Wall Street. . . .

"The tax savings these clients can make on cattle purchases compare favorably with the profits they can make on most stock-market investments. Consider, for example, the Kansas City broker for whom Oppenheimer bought a herd of 'breeding cattle' --cows used to produce beef cattle -- two years ago.

"The broker paid $3,000 of the $30,000 purchase price in cash, borrowing the other 90% on a loan Oppenheimer arranged. . . . Interest on the loan -- in this case, $4,400 in two years -- is tax-deductible.

"The broker by now has paid out $32,000 in cash to cover various expenses of running the herd and deducted all of it from his nonfarm taxable income; at this point, the farm operations themselves have produced no profit. Besides interest, the deductions include a $5,050 management fee paid to Oppenheimer, $2,550 paid for use of bulls or artificial insemination for his cows -- and a whopping $20,000 paid to purchase in advance several years' supply of feed.

Table 19.--Number of individuals engaged in farming, by size of total income, 1965

Total income group	Individuals reporting: Profit from farming	Individuals reporting: Loss from farming	All	Percentage showing a loss
	Number			Percent
$5,000-9,999	473,948	319,741	793,689	40.3
10,000-14,999	132,109	79,564	211,673	37.6
15,000-19,999	42,160	28,843	66,003	43.7
20,000-49,999	38,752	30,380	69,132	43.9
50,000-99,999	4,974	7,424	12,398	60.0
100,000-499,999	1,040	2,874	3,914	73.4
500,000-999,999	32	170	202	84.2
1,000,000 and over	16	103	119	86.6

Source: Converted to table form from data in (66, pp. 24-25).

"The last deduction illustrates a special tax advantage of farming: Farmers are allowed to keep their books on a 'cash' basis, rather than the 'accrual' basis most businesses must use. That means, among other things, that they can deduct the full purchase price of feed in the year it is bought, rather than having to spread the deduction over the years in which the feed is consumed. This benefit was written into the tax laws because most farmers were assumed to have neither the time nor the accounting expertise to keep accounts on an accrual basis, but it applies to sideline farmers who are thoroughly familiar with involved bookkeeping methods.

"Farmers also are allowed to take depreciation deductions on some kinds of cattle; in the broker's case, depreciation came to $5,000. That brought his total deductions to $37,000 -- saving $25,900 in taxes he otherwise would have had to pay at the 70% rate applying to the top slice of his nonfarm income.

"That saving, it's true, may eventually be reduced by capital-gains taxes and possibly a paper loss on sale of the cattle. But the broker still figures to come out way ahead.

"If he had Oppenheimer sell his cattle at today's prices, for instance -- and he may -- the broker would receive about $48,000, or about $4,000 less than he would need to recoup his cash outlays and repay the purchase loan. Also, he would have to pay capital-gains tax on $33,000, representing the excess of the $58,000 sale price over the cattle's $25,000 book value (the $30,000 purchase price less the $5,000 depreciation). At the top capital-gains rate of 25%, this tax would be $8,250.

"Subtracting this tax payment and the $4,000 paper loss from the $25,900 he has saved in income taxes, however, would leave the broker still $13,650 ahead on the deal. That's two-year return of 39% on his total cash outlay of $35,000 - a return not many stock-market investments can match.

"Lucrative as this deal was, it still doesn't illustrate all the advantages of cattle ownership. Investors in dairy cattle get the benefit of greater depreciation deductions than the Kansas City broker took, combined with greater income from their herds.

"Modern Dairy Farms Inc., Fort Madison, Iowa, now has 120 investors in its tax-shelter program, compared with 35 two years ago. One client, a clothing executive in the 50% tax bracket, bought a herd four years ago for $160,000, half of which he borrowed. He already has written the herd's value down to $60,000, saving $50,000 in taxes in four years through the $100,000 of depreciation deductions alone.

"In addition, he receives income of $40 per cow per year, or $16,000 annually, on his herd of 400 head. (An equal revenue from milk sales goes to Modern Dairy Farms as a management fee: the farmer who raises the cattle keeps any remaining milk income.) With other deductions on the herd offsetting taxes on his milk income and then some, the investor figures to repay his $80,000 purchase loan out of milk revenues in five years, increasing his potential profit on eventual sale of the herd. This investor went to see his cows once: he recalls 'slogging through the manure in the rain to take a look at the little beasts.'

"The permission for farmers to keep books on a cash basis also enables sideline agriculturists to take especially big deductions in years when their nonfarm income, and thus their potential tax liability, is highest. An example is one Oppenheimer client who bought a herd of cattle being fattened for slaughter for $17,684 - 95% of which he borrowed - in November of a year in which he knew his top

tax rate on nonfarm income would be 70%. He immediately paid out $7,000 for a huge supply of feed. Other expenses brought his immediate deductions to $7,925, saving him $5,548 on that year's taxes.

"Early the next year this investor made a planned switch to a new nonfarm job that he knew would depress his income enough at the outset to reduce his top tax to 35%. So he had Oppenheimer take advantage of favorable prices and sell the cattle in April. He received enough to recoup his cash expenses, repay the purchase loan and leave a nominal profit of $510.

"Since he had held his cattle only five months, the investor paid ordinary-income, rather than capital-gains, tax on the excess of the purchase price over the sale price. But at a 35% rate, that tax came to only $3,351. Subtracting this sum from the total of his profit and previous year's tax savings left him $2,197 ahead on a cash outlay of $8,810 - a return of almost 25% in five months. And that was without the benefit of depreciation deductions, which aren't permitted on feeder cattle."

The article then pointed out that some management firms are poorly operated and result in losses for their clients. It continued with an example showing that this approach is profitable only for those in the highest tax brackets.

"Even the management-company client whose investments are carefully handled can't always count on getting much benefit from farm property. For the only middling rich, such investments sometimes don't yield enough tax savings to make the outlay worthwhile.

"A retired St. Louis investment banker, for example, has laid out $58,700 since 1964 for the purchase price and expenses of a cattle herd that now numbers 340 head. His deductions against nonfarm income (mostly from stock trades) came to $40,000 in the first four years, but since he is 'only' in the 50% tax bracket, he saved only $20,000. Last year his nonfarm income dropped, and he had unusually high nonfarm deductions, including large medical expenses, to offset it almost entirely. As a result, he got 'almost no tax benefit' from cattle deductions, since he didn't need them.

"If he sold his herd now, the St. Louisian figures he would just about get back his purchase price and cash expenses and have to pay about $12,000 in capital-gains taxes. Subtracting that from his income-tax savings would leave him only $8,000 ahead on the investment - a five-year return of less than 14%, or less than 3% a year, on his cash outlay. 'I undoubtedly would have done better putting the money into the stock market,' he says.

"Why then did he bother investing in cattle? 'Some of my smart friends have cattle programs, so I figured I'd better have one too,' he replies."

Tony DeChant (14, p. 13), President of the National Farmers Union, reported,

"When Senator Lee Metcalf of Montana looked into the matter, he found 31 of the 100 largest metropolitan areas reported net tax losses in farming. Four metropolitan areas in California reported a net loss of $60 million. Four metropolitan areas in Texas reported a collective net loss of $40 million. These were all absentee farmers, many of them using these losses to reduce the amount of taxes they owed on other enterprises."

Radcliff (66, p. 21) said,

Senator McGovern investigated "The largest corporation in the country which has as its main enterprise that of agriculture. This corporation, according to an IRS report, . . . had gross receipts in . . .1965 . . . of $432 million. This was more than 1 percent of the total gross of all farmers in the United

States in 1964. So 100 corporations like this one already in existence could replace all of the 3 million remaining family farms, and yet this one big farm corporation paid only $970,000 in Federal income taxes or less than one-fourth of 1 percent of their total gross return."

I have given these examples in detail because I believe they will explain most of the discrepancies between IRS and USDA net income figures. Given the fact that gross income data from these two sources can be reconciled, the differences in net income must reflect different accounting procedures for expenses. In the USDA estimates, farmers are presumed to operate on a "true" cash basis; that is, for example, expenditures for feed in 1969 are for feed to be fed in 1969, not for that to be fed several years in the future. To some extent, income from farming in the IRS data shows up not on schedule F but on schedule D, reflecting long-term capital gains. And this is not counted as farm income. Thus, IRS cash expenditures in any given year exceed the USDA figures because a good part is designed to create long-term capital gains that are not reported as farm income by either IRS or USDA. 32/

Wide publicity now has been given to the types of tax-loss farming described here, and it is likely that tax reform measures will be enacted. Another article from the Wall Street Journal (96, pp. 3,8) described a proposal made in April 1969 by the Administration:

"FARM INCOME: In addition to including certain excessive amounts of farm loss in the limit-on-tax preferences provision, the Treasury recommends changes to help prevent taxpayers from taking excessive advantage of the present liberal farm accounting rules. A taxpayer with farm operations would be required to keep an 'excess deduction account' in years when his farm loss exceeds $5,000. The account would include the amount by which his ordinary farm deductions in any year exceed by more than $5,000 the total of his ordinary income from farm operations. The amount in this special account would be reduced by net ordinary farm income realized in subsequent years. Eventually, any capital gain from the sale of the farm or any its assets would be treated as ordinary income to the extent of the balance in this 'excess deduction account.' "

As firms have time to adjust to such legislation as may be passed, a substantial part of the present discrepancy between IRS and USDA net income data may disappear.

Economies of Scale

Once the tax advantages of investment in agriculture are eliminated, future activities of large corporations in this field will be determined chiefly by whether there are economies of scale beyond operations that can be handled by family-size farms. In this section, views of various persons are quoted.

Raup (67, p. 240) said,

"I believe that it is also fair to state that we have not adequately extended our agricultural education and advisory services to take care of modern technology. I am thinking particularly of agro-chemical technology. This is often unavailable in a practical sense to the smaller farmer. . . . This seems to be an attractive advantage to the large corporation."

Upchurch commented,

"Why have our farms become larger and fewer? . . .

32/ USDA reports an item called net change in farm inventories, which in 1967 amounted to $0.4 billion dollars. According to Grove, Cannon, and Masucci (29, p. 16), "This is a measure of the net value, at calendar-year average prices, of physical changes during the year in farm inventories of crops and livestock." It is very different in nature from, for example, the increased value of a breeding herd raised from young calves to maturity.

"Constant improvements in the size and performance of farm machinery and other modern technology makes the individual farmer more productive than farmers of past generations. Today's farmer with 6 - and 8 - row equipment has the capacity to operate on a larger scale than his father did with 2-row equipment, and than his grandfather did with horse-drawn equipment.

"Farmers today, just as you and I, have an appetite for more income. Given the capacity to operate on a larger scale and the urge to increase total net income, the modern farmer seeks to expand. He rents or buys more land. When he does this, he may reduce unit costs of production, but he will strive to expand even at increasing unit cost, if he can increase his total net profit.

"So farmers have the capacity in modern technology to increase size of operations. They have the incentive in the normal urge for more income. It goes without saying that the county which once had 1,000 320-acre farms may now have room for only 500 640-acre farms." 33/

Bertsch (6, p. 97), former Administrator, Farmers Home Administration, said,

"Large-scale farming operations have a superior advantage when it comes to buying fertilizer, tractors, and fuel oil. They can and do deal with the source of supply at a discount.

"Corporation farms also have a superior advantage when it comes to tapping the supply of capital. They have close connections with the larger credit institutions. They are often formed by groups that have larger amounts of investment capital.

"Corporation farms also have a superior advantage when it comes to marketing their produce. They can promise to deliver large quantities, of a set quality, at a set date. In addition, because of their very nature, they can have close financial and managerial connections with food processors, wholesalers and retailers."

Peterson and Vollmar (65, pp. 118-119) pointed out,

"Most cost of production studies do not adequately allow for advantages that the largest family farms have in managerial ability, and in the purchase of seed, fertilizer, insecticides and pesticides, machinery and other production items. Beyond this, factory farms probably have additional advantages in management, financing, purchasing of inputs and marketing of products. . . .

"A more difficult policy issue arises if research shows that factory farms can produce food and fiber significantly at lower cost per unit of output than the most efficient commercial family farm. Then the American people have to decide whether there are sufficient social benefits accruing to society in general from keeping a minimum number of families on farms to justify the cost of subsidizing inefficiency in agricultural production. . . .

"The recency of the development, the fewness in number and lack of availability of information has so far prevented research of this type."

They then cited two examples (65, pp. 123, 143):

"A study for wheat for 1966 in the Nebraska panhandle showed no change in cost per bushel above about 200 acres per farm up to 1,500 acres.

"A study for range cattle ranches in Arizona and New Mexico for 1960 showed no change in cash costs per pound of beef sold above about 250 animal units to about 500 but depreciation and death loss per pound was smallest for the largest class."

Mayer, Heady and Madsen (53, pp. 19-20) discussed the following example:

33/ Op. cit., pp. 2-3.

In Iowa, "costs per acre decline significantly as farm size increases, dropping from $85 per crop acre on 160-acre farms, to $56 per crop acre on 600-acre farms. . . . These differences in costs between large and small farms cause a large difference in net returns to land and management. On 160-acre farms net returns of $10 per acre gave a $1,600 return to land and management. But 600-acre farms had a net return of over $34 per acre and when combined with the larger number of acres gave over a $20,000 return to land and management from the cropping portion of the farm operations. While 600-acre farms were only 4 times larger in size, net returns were over 12 times as large."

These examples relate chiefly to farms that could be in the large family-size class. They suggest, however, that even greater economies might be achieved if studies were designed to include larger farms.

Heady and Ball (37, pp. 164-167) provided the following somewhat philosophical comments on this subject:

"Whether there will be 50,000 or a million farms in the future rest not on time trends that can be projected from time series data but on the nature of cost or scale economies of the farm firm. . . .

"We have no information, at least to our knowledge, to indicate the extent to which cost or scale economies that favor larger farms unfold from price or production functions. If such scale economies are attached largely to the elasticities of the production function, it seems rather obvious that the control, management, and operation of farms would continue to reside with the farm manager. . . . If the greater economies are reflected in the price function relating to material inputs, or the cost functions of processing firms, and if mammoth scale were necessary to realize these through the capital markets, the farm operations might more nearly pass over into the hands of the input supply firms: again leaving the farmer simply as an animal tender or as a sophisticated landlord furnishing land services. . . .

"The extent and degree of scale economies in agriculture is more important, with respect to both the nature of the individual firm and the structure of the rural community, than any other phenomenon relating to the individual farm. . . .

"The range over which scale economies may exist and their degree . . . also has optimal relationships to the institutional arrangements under which farm firms operate. If they are relatively restrained but still allow farms of sizes that give rise to problems of capital acquisition and accumulation to individual families, corporate forms of business may be best suited from the standpoint of taxes and 'holding the unit together'. But if the scale or cost economies extend even further . . . . group farming activities may provide the means competitive to the structure sometimes posed of farmers as sophisticated landlords or animal tenders while the field operations, chemical drugs, and feeds are services provided by the input firm."

This area appears to be one in which further intensive research would be highly fruitful. Such research should be concentrated in two areas that have been largely neglected to date: (1) Economies of scale for farms that are larger than typical family-size farms and (2) economies that chiefly result from increased management efficiency or from increased bargaining power for (a) costs of inputs, (b) prices for output, or (c) cost of obtaining outside capital.

Statistical Concepts and Problems

The following comments indicate areas in which changed concepts of agriculture may be needed should production become

concentrated in the hands of large--as contrasted with family-size--corporations or partnerships.

In the USDA memorandum relating to farm income estimates, the following comment was made:

"Corporate income concepts and measurements are substantially different from those for sole proprietorships. If corporate organization becomes the form of farm operation for a sizable fraction of farm production, the validity of present farm income concepts and methods would be called into question." 34/

In contrast, Harl (32, p. 141) said,

"Conventional analysis of the farm firm is based upon the implied assumption that one owner-operator makes decisions, bears the costs and receives the returns from production. If two or more individuals own production resources or their services, the sharing of costs and returns within the firm becomes a factor potentially affecting resource allocation and firm efficiency. . . . The corporation or other economic entity, to the extent that it is the owner of production resources and also the decision maker, occupies a position similar to that of the sole proprietorship."

Taeuber (82, pp. 1672-1673) made the following point:

"In general the census has treated farm operators as persons and has not recognized that many operators have corporate status. . . . Inevitably the question arises whether any useful information is conveyed by reporting the personal characteristics of farm managers in relation to the farms that they manage."

Scofield (73, pp. 1382-1383) said,

"Much of the apparent increase in average acreage per farm is purely statistical, resulting from disappearance of nominal farms and the reduction of land counted as 'in farms' as a result of urban expansion, abandonment, and the subtle effects of changes in farm definition. We suspect . . . that less than 5 percent of the farms in an agricultural area can increase in size annually by means of buying or renting more land."

In 1964, Nikolitch (60, p. 10) wrote,

"The top 20,000 farms in size represent an important sector of American agriculture, accounting for 17 percent of all marketings in 1959. As farm businesses, these farms are relatively large. However, when compared with other American businesses they are far from being large. On the basis of the standard used by the Small Business Administration in determining whether or not concerns are eligible for assistance, most of the 20,000 farms would qualify as small businesses."

Scofield gave the following explanation of why the number of agricultural corporations found in the USDA study differs from the number reported by IRS. He said,

"Firms which did not derive the largest percentage of their total receipts from the sale of farm products, but which also had some farming activity, would be excluded from the (IRS) count of farm (corporations). There are a significant number of firms having integrated operations which are classified under other industry codes such as meat products, canning, grain mill producer, etc. . . .

"The USDA survey count of corporations having agricultural operations is about 4,500 (or 24 percent) less than was reported by IRS in 1965." 35/

This difference reflects the following:

34/ Op. cit., p. 7.

35/ Op. cit., pp. 1-2.

(a) "Landlord" corporations are included in IRS data if they received share rents, but these corporations were excluded by USDA. In other words, USDA counted only operating corporation farms.

(b) IRS includes cooperative grazing associations, other farm cooperatives, and institutional farms, if they are taxable. (Many are tax exempt.) USDA received 450 returns from such farms but did not use them.

(c) At times, separate returns may be filed with IRS for subsidiaries of firms.

(d) Offsetting these factors to some extent is the fact that the USDA survey counted a firm once for each county for which it had operations.

(e) The USDA survey excluded land owning corporations that just owned land. IRS includes such corporations farming if they received share rent. If they receive cash rent, IRS puts them in real estate. Land-clearing firms that grow some crops would be counted by both USDA and IRS.

(f) Scofield believes there are about 100 nonagricultural corporations (publicly traded) that operate farms. Presumably these would be in the USDA survey once for each county in which they had operations. They probably would not be in the IRS count of farm corporations.

More may be known when published data are available for all 50 States covered by the USDA study. It is difficult to explain why the USDA study produced a total of farms so much below the IRS total as presently indicated.

XI. CONTRACTS, VERTICAL INTEGRATION AND AGRICULTURAL SPECIALIZATION

As will be discussed in considerable detail in this section, specialization in agricultural production greatly increases risk from (a) variations in weather, (b) pests and disease, and (c) variations in price. A large firm can spread risks more easily than can a small firm. Hence, the use of contracts and the shift to vertical integration now are widespread in a number of highly specialized branches of agriculture.

Ebers (18, p. 165) said,

"It only took 10 years for the broiler industry to go from 3 to 98 percent integrated. The typical integrated broiler producing-marketing firm or corporation has its own hatchery, feed mill, and processing plant, as well as contract broiler growers. . . .

"A producer or grower cannot grow broilers without first having a contract with a processor. There is no market at the grower level."

A Texas cooperative, in a newsletter to members (27, p. 13), cited the following figures:

"Recent estimates show (that) about 95 percent of U.S. broiler output is produced under contract, as are 95 percent of the broiler-type hatching eggs; nearly 35 percent of the table eggs; 85 percent of the turkeys; a tenth of the hogs; 30 percent of the beef cattle; 25 percent of the lamb and mutton; nearly all of the citrus fruits; and 90 percent of the vegetables for canning and freezing." 36/

Gallimore and Vertrees (24, p. iv) said,

"Risk-sharing contracts are the type most used in the production of broilers, turkeys and eggs. Under these contracts most key decisions about production and marketing are transferred to the contractor along with most production risks. Under risk-sharing contracts the grower typically provides housing, equipment and labor and the contractor feed and other inputs."

The following by Steen (78, p. 28) indicates how and why one large firm decided to go into integrated poultry production. It is, I am sure, a typical situation.

"From animal feeds, Ralston Purina moved into poultry production and processing, and it is now a substantial factor in these related lines. Its entry into the poultry business was hardly premeditated, as it stemmed from feed sales in a year when excessive production brought on ruinously low prices and inability by producers to pay their debts. Having become the involuntary owner of various poultry facilities, the company undertook to make the

36/ For futher details, see Mighell and Jones (56); Gallimore and Vertrees (24); Gallimore (23); and Mighell, Jones, and Gavett (57).

best of the situation. Throughout the past 20 years or so, the poultry business has been characterized by great extremes in production volume and consequently in extent of earnings or lack thereof. In some seasons, returns have been attractive but in others they have been decidedly the contrary, 1967 having been the nadir. However, Ralston Purina has fared much better than others in this line, and it now has 19 breeder farms and hatcheries, 13 egg processing plants and 15 poultry processing plants, mostly for turkeys and broilers, all in this country. Abroad it has 19 breeder farms and hatcheries and 13 poultry processing plants. However, the company announced recently a reduction in some parts of its poultry activities."

Presumably most or all of the eggs, turkeys, and broilers are raised under contract, since no mention is made of production as such.

Concerning vegetables, Mighell, Jones, and Gavett (57, pp. iv, 3) said,

"The first canning companies grew their own produce, but it was not long before it was found more profitable to contract with farmers for the growing operation. Some processors continued to grow limited acreages for experimental, demonstration, or yardstick purposes, but most of them found it better to specialize in processing. . . .

"The high degree of specialization characteristic of many vegetables, both for processing and for fresh market, would not be possible if growers were not able to reduce the total hazards through contracts and agreements in advance of production. Contracts provide an efficient means of dividing the whole enterprise among different specialists. . . .

"Price arrangements were indicated in a large proportion of contracts, either in terms of specific price commitments, or in terms of how the price was to be figured.

"Many different specifications for variety, grade, seed, fertilizer, and cultural practices were found in contracts. Most contractors supplied at least some labor, equipment, materials, or financing for these items. Three-fourths specified a fieldman for advice, counsel, and inspection. The fieldman is a key link in the decision-making process."

Based on the 1964 Census of Agriculture (87, pp. XV-XVII), items for which 50 percent or more was grown on farms having a contract or agreement to produce the items were: safflower, (100 percent), canarygrass seed, sugarbeets (100 percent), hops, sweet corn for seed, castorbeans (100 percent), sugarbeetseed, greenpeas, garlic, cranberries, pears, and papayas. Most of these items require a high degree of specialization.

Custom feeding of cattle is in a related but different category. Here firms, some of them large, cater to individuals who are willing to take the risk of feeding cattle, but who would not otherwise have access to the necessary, highly specialized physical facilities. The following, written in 1969 (26, p. 3), indicates the rapid growth in one geographic area:

"Custom feedlots of the High Plains region this year will turn out about 2-1/2 million head of finished cattle ready for the slaughter houses, stacking a gross bundle of at least $2 billion back into this Southwestern agricultural economy. . . .

"Mushrooming from an annual output of 300,000 head of fed beef cattle in 1958, the High Plains cattle feeders are now ranked as the third largest feeding area of the world with second place position expected by the end of 1970."

Williams (98, pp. 29-31) gave further details of this industry. He said,

"Although custom feeding facilities have existed since the 1930's, . . . the modern

custom feedlot is a relatively new innovation. Custom feeding has become a principal method of feeding and popularity of the method is spreading and increasing. . . . About 35 percent of the total number of sample feedlots fed at least some cattle on a custom basis. However, relatively few, 6 percent, fed cattle exclusively on this basis. Most feedlot owners prefer to feed at least a few cattle for their own account but they generally handle these accounts exactly as if the cattle were placed with the lot on a custom arrangement. In a corporate situation, cattle placed in the lot by individual stockholders or officers of the company generally are considered custom fed cattle."

He continued (98, pp. 32, 35):

"Patterns of ownership with respect to cattle in feedlots were similar in many respects to patterns of feedlot ownership. More than two-thirds of the owners of cattle in commercial feed lots, accounting for three-fourths of the cattle in all commercial feedlots, were occupied primarily as farmers, specialized cattle feeders, or ranchers, i.e. as agriculturalists."

Meatpackers were next most important. "All others" were less than 7 percent.

Reasons for Increased Use of Contracting and Integration

In 1966, Padberg (64, pp. 1391-1394) wrote,

"Vertical integration, often suggesting a myriad of coordinating activities, will here imply control by complete or partial ownership, with capital flowing from the integrating to the integrated industry. The two types of integrated agriculture, then, would be ownership of farms by supply or processing firms and ownership of supply or processing firms by farmers. While the latter seems to be the more general pattern of integrated agriculture, the ownership or even contractual control of farms by supply or processing firms causes by far the most ruckus."

He listed the following reasons for integration:

"1. Adoption of profitable but capital-intensive techniques which the traditional small-business structure of the industry could not afford (poultry industries).

2. Creating a captive outlet for feed that involves lower selling costs than seeking patronage through nonprice competition (poultry industries).

3. Market manipulation through using integrated supplies to depress demand and perhaps lower price (cattle feeding).

4. To obtain raw product at a more stable and predictable cost . . . (citrus industry and food retailers).

5. To obtain a more uniform supply in terms of quality and/or quantity (eggs, cattle feeding, and fruits and vegetables).

6. Reduction of uncertainty and transfer costs between industries. (all)

7. Efficient scheduling of successive operations (all)."

He added (64, p. 1398),

"Where new techniques increase output, prices for all producers may be forced down toward the lower costs of integrated operations. In this situation, unintegrated farmers using conventional techniques may be squeezed out. ... In this case, the process of integration would feed on itself."

Heady and Ball (37, p. 174) said,

"Changes in resource prices that favor capital inputs over labor not only bring larger farm

units but also bring greater specialization. But greater specialization also poses the possibilities and actualities of wide swings in income as yields or prices fluctuate. These phenomena may themselves squeeze specialized farming operations in the direction of vertical integration and animal tenders, in order that more of the burden of risks and uncertainties are borne by very large-scale agribusinesses or input-furnishing firms. ...

"Yet there are other strategies. . . . Should the owner and manager of a 50,000 (head) feed lot in the Corn Belt buy a specialized 100,000 acre wheat farm in the Great Plains and a specialized egg unit in Maryland?"

Mighell and Jones (56, pp. 43, 47) pointed out,

"In production of broilers, peas, sweet corn, and tomatoes for canning, contracts are almost essential to operation. . . .

"Such commodities must be processed at a certain time for best quality. Few producers are willing to take a chance of finding a market within the short period available after production has been finished."

Regarding broilers, they said (56, pp. 49-50),

"Disease and heavy mortality of birds originally constituted the main hazards. Even in the late forties, death losses of broilers in Delaware were frequently as high as 40 percent for some producers. . . . In recent years, (that is, in the early 1960's) prices have constituted the major source of uncertainty. . . . A feed dealer with many flocks under contract is more concerned with average mortality and average prices for the entire year."

They continued (56, pp. 19, 26):

"To be efficient in a competitive environment in the longer run, a firm must be able to bring about organizational changes that will lower unit costs. . . . The optimum size for each stage and the optimum number of stages are both essential to long-run efficiency. . . .

"Economies of vertical integration and other forms of close vertical coordination arise from at least four sources. First, they come from bringing technologically complementary productive processes together in a single plant. . . . Second, they result from elimination of expenses of purchase-sale transactions incident to moving goods from one stage to the next. Third, they may follow from elimination of profits to supplier or customer firms in excess of basic interest return on the added capital investment. Fourth, there are economies from the improved coordination of rates, amounts, and quality of output at successive stages."

To a considerable extent, producers fear the expansion of contracting. For example, Gallimore (23, p. 28) said,

"A firm generally prices feed, poults, and other inputs higher to its contract producers than to others. This is to cover the risk and to pay for added supervision and management furnished by the contractor."

Likewise, Breimyer (9, p. 109) commented,

"Absence of open markets not only removes an alternative to bad contracts, but makes it impossible for a farmer to produce except under contract. In parts of the Southeast independent farmers no longer are able to produce broilers for sale live. No market exists for them."

On the other hand, Padberg (64, p. 1386) said,

"John Hopkin, from the vantage point of California agribusiness, observes that the time is fast approaching when many farm products that do not meet the strict specifi-

cations of supermarket channels will have no market at any price." Contracts likely would be required to meet such specifications.

Ronald Mighell mentioned that some firms are pressured into producing for themselves when the alternative is contracting with dozens or hundreds of small producers.

Possible Future Developments

In 1965, Kennedy (48, pp. 1455-1456) wrote,

"Today the most affluent and prosperous farmers concentrate on a few enterprises, which they manage with almost scientific precision."

Two years later, Kohls (51, pp. 334-335) said,

"The production units of processing seem to be increasingly specialized. For example, separate hog, cattle, broiler, and turkey slaughtering facilities are tending to replace the multiple purpose slaughter facilities. (The same is true of farming.) In the critical issue of managerial control of business units, however, the issue is not so clear. The development of the conglomerate manufacturing unit of many product lines, both combining products with the food complex and also combining food and nonfood products, seems to be on the increase. . . . Pricing the product mix is common terminology."

Farris (20, p. 177) made the following prediction:

"Many producers are finding it more and more desirable to have a specific sales outlet in sight before making production decisions. . . .

"With continuation of present policies, we will likely see substantial further vertical integration both through direct ownership and by contract. We would expect open markets gradually to dry up and prices they generate become less and less representative of general supply and demand conditions. . . . Management will likely continue to gravitate from the hands of farmers to those of processors and suppliers and the farmers' role reduced further toward that of a laborer."

In a long-range view, Arthur, Goldberg, and Bird (3, pp. 46-48) predicted that by 1980,

"Many farming operations will become 'on-line production factories.' The farm of the future will be a carefully integrated complex; it will extend from genetic research outputs to end products tailored to consumer preferences. Coordination will be accomplished through numerous types of decision structure systems. Farm managers, corporations, financial institutions, and governmental units will work together as teams or units.

"Farm inputs will be supplied by specialists. Farm operations will become progressively more mechanized--investment values of $1 million per farm will be commonplace. Farmers of the future will 'manage a business' as well as till the soil. They will use vastly improved agricultural control chemicals, feed technologies, fertilizer, and water control practices. As farmers become managers in the inevitable transition to 'agribusiness,' they will find their positions enhanced. . . .

"There will be coordination between producers and processors of farm products; both groups will become more market-oriented, and this will call forth new means of integrating management decisions. . . .

"Agribusiness operations will tend to resemble the industrial sector as respects planning and coordination. The growing complexity of the agribusiness system will require that innovative managers maintain an improved information network. They will also need the skills and tools to use the results in an effective way."

They continued (p. 73):

"Poultry and egg farming is now a 'factory' operation that can be conducted almost anywhere. Soon, other animal products may be similarly handled. Field crops may be handled by contracts and computerized pushbutton equipment. The manager could handle a number of scattered land units, but have other firms do the actual farming through contracts. One firm may plow and disc, another plant. Still another could cultivate, and a fourth one harvest. The above pattern may not predominate in the immediate future, but it is already important enough to influence some agribusiness complexes. Traditional statistical guidelines of the past will need to be adjusted."

This view is similar to the one expressed by Cochrane.

Statistical Problems

Increased use of contracts and of vertical integration creates statistical problems in three areas: (1) Are "bird tenders," for example, farmers or farm laborers? And what about a person who only supplies land to grow vegetables? (2) How do you price products at a point where no sale occurs? and (3) How do you break down farm income and expenses from total expenses of integrated corporations when even the corporations may not know this breakdown? Comments by others are reported briefly here.

In 1966, Taeuber (82, p. 1672) wrote,

"Has it now become necessary to establish a separate category of farm operators who supply little more than their own labor, as in some forms of contract farming? Is the person who carries on the actual operations, but who is dependent on others for production and marketing decisions, the supply of capital, and detailed instructions on how to carry out his functions, to be classified as a farm operator?"

As of now, such people are called farm operators, and their place is called a farm.

Stauber gave an extensive discussion of pricing problems caused by vertical integration and contracting. 37/ Some of his comments are included here. He said "position" of sale varies sharply, particularly for fruits and vegetables, as follows:

(a) On-tree, for fruits--applies to most of Texas and half of Florida
(b) PHD--incoming packinghouse door
(c) FOB--outgoing packinghouse door
(d) Various inbetween positions.

Buyers may perform services, such as spraying, with cost deducted from the final price.

In other areas, prices relate to

(a) Roadside--presumably next to the orchard
(b) Convenient receiving stations--some distance from the processing plant
(c) PHD
(d) On-tree.

Several of the price series for citrus for each State are published regularly in the USDA monthly report, Agricultural Prices.

Stauber's committee made the following recommendations:

(a) Prices should continue to be average prices for the entity for which production or sales data are available.
(b) Whether particular services are included in the price should depend on whether the farmer has free choice to (1) perform or (2) arrange to perform the service.
(c) The most commonly accepted pricing practice should be used for each commodity State by State. Differentials for the several

37/ B. R. Stauber, Price Committee Report, 12 pages. May 26, 1966.

prices should be published once a year and each State should be footnoted as to the practice regularly reported.

(d) Further study on need for more detail by grade and location is recommended.

The following recommendation was made on broilers:

"The Committee urges that as an interim operation, the SRS investigate the feasibility of collecting data concerning the fees paid to poultry 'bird-tenders'. Such a series of data would provide an interim basis for estimating returns to 'farmers' from poultry raising, since it is clear that the series 'prices received by farmers' has about finished its usefulness for this program. . . .

"These developments raise a series of questions for administrative decision. Can prices of broilers, ready-to-cook, in major consuming centers be used as the basis (perhaps with adjustments) for estimates of farm value of sales? If so, can the broiler production activities of feed dealers, cooperatives, and other broiler producing organizations be separated from their other activities? Could or should the broiler producing activities of these firms be included in the number of farms and their employees in the number of persons employed in agriculture?

"If broiler producing activities of feed dealers, cooperatives, and other broiler-growing organizations are not 'farms', are the 'bird-tenders' farmers (as classified by Census) and if so how can their earnings be included in farm income? . . . If the owners of the birds are not 'farmers', are broilers 'farm products' . . . ? If these operations are 'broiler factories', does the Department of Agriculture properly have responsibility for estimating production or prices . . . ?"

Stauber indicated to the author that it is virtually impossible to obtain data that would permit publication of prices adjusted for a uniform set of services. An attempt was made in four States to obtain data on services and prices for fruits and vegetables, but little relation between services and prices was found. This was believed to reflect unreported variations in additional services included. Integrated operators are willing to report on number of units handled but are reluctant to release detailed information on contracts or on costs at various levels of processing.

John E. Lee, Jr., suggested that information on the farm part of integrated businesses might be obtained from reports recently required by the Securities and Exchange Commission. These reports cover the separate components of conglomerate corporations. This suggestion may be worth investigating, once such reports have been obtained for a few years.

Kyle Randall indicated that live broiler prices could be derived from ready-to-cook prices with sufficient accuracy for use in national farm income estimates, but that this method would be less accurate in connection with data by State. He confirmed Stauber's concern about wide differences in customary practices for pricing fruits and vegetables. In some States, carrots are priced unharvested in the field; in others, they are washed and packed, ready for retail sale. But except for citrus, most processors just want to furnish a price, with no indication of services included.

XII. FARMERS AS ENTREPRENEURS

Lee (52, p. 1554) said,

"The increasing division of labor which results in nonfarm specialists doing things once thought to be an inherent part of farming is confusing to some who now find it difficult to 'identify' farmers. Viewed properly, however, these changes permit us to strip away the veneer of subsidiary roles farmers have traditionally played and to define what is, and always has been, the central role of farmers and the meaning of farming. Farming is the bringing together of resource services for the production of farm commodities. The farmer is simply the agent for that process. He may choose or even be forced to perform related roles; but these roles are not farming."

The meaning of this was spelled out in more detail by Lee:

"Basically, we identify production activity and production occupations in terms of the use of resource services--not in terms of ownership. Thus, ownership of stock in an automobile manufacturing company does not make one an automobile manufacturer. Likewise, to own farmland is not to be a farmer. To be a farmer, one must take the responsibility for putting the services of land, whoever the owner, together with the services of labor and the services of the various forms of capital in a manner which results in the production of food and fiber. . . .

"It is conceivable that all of the separate mechanical and labor processes of farming can someday be performed by specialists who are custom operators . . . . A byproduct of the availability of custom services is that viable small farms can have access to technology otherwise available only to large farms and thus can achieve many of the economies of large farms." 38/

Reasons for an increased interest in management by farm operators were noted by Ruttan (71, p. 1115):

"It also seems reasonable to anticipate that, in spite of intervention in product and factor markets, the land and labor markets will continue to function in such a manner that the value of an hour spent on the seat of a tractor by a farm operator will typically not exceed the hourly wage rate of a hired farm worker engaged in the same activity."

In 1965, Hurley (42, pp. 1570-1571) wrote,

"We are on the threshold of a farm-managerial revolution. . . . Until recently the basic processes of agriculture--planting, harvesting, selling--continued unchanged and the managerial function developed into a fairly stable and simple form. . . . Now the burden on management has become intense. . . .Farm managers must be continually innovating. Factors of production--land, labor, capital, and management--must be assembled in optimum

38/ Op. cit., pp. 3, 9.

amounts. . . . Management is today's most important farm input, but lack of information and criteria for its measurement prevents its use as an input in the determination of the size of the farm business."

Looking to the future, Fuller and Beale (21, p. 1238) said,

"In the more distant future (say three to five decades) when the organizational revolution (that is, agribusiness) approaches the plateau of its fulfillment, farm entrepreneurship will no longer be combined to any significant extent with working self-employment. Farmers will have become professional managers on their own account or will have been displaced by the managements of integrated corporations that direct farm production and control output."

In 1963, Higbee (38, p. 13) wrote,

"Most city factory workers long ago became reconciled to the fact that they could not own and operate their own shops. Now it is the farmer who faces the realities of the industrial age."

Breimyer (9, pp. 50, 62) said,

"In an earlier age the farmer's managerial role may have been his least important one. Now it may well control his very survival. . . .

"Our historical institutions of private ownership of land are not now under any threat. Only the managerial relationships within agriculture are a focus of concern."

Investment in Agriculture by Nonfarmers

As farmers become primarily managers, opportunities increase for investment in agriculture by nonfarmers. Likewise, needs for such investment increase. The following comments relate to these points.

Harl (32, pp. 153-154) said,

"It is somewhat ironic that higher levels of prosperity in agriculture are likely to be accompanied by increased investment activity by nonfarmers in agriculture with the result that more management and control rights are vested in off-farm groups. . . . Several instances of formation of operating farm corporations by nonfarm groups have been reported in recent months. The availability of competent management inputs is likely to be a crucial factor in whether such firms succeed and ultimately increase in number. Of course, formation of incorporated farm landlords has become relatively common wherein nonfarm investors form a corporation which in turn purchases land and rents it out to tenants under a conventional lease arrangement. . . .

"If the growth potential of the business is not such that $300,000 or more of stock can be sold, the business is not in a position to seek capital through widespread capital solicitation or from the larger capital markets because the cost for small public offerings is prohibitive."

Lee (52, pp. 1555-1560) wrote,

"As farmers specialize more in putting resource services together to produce food and fiber, they are leaving more of the ownership and investment functions to other specialists. . . . In 1964, only 7 percent of full owners had farms with sales of $20,000 or more (the two top economic classes as Census defined them). At the same time 24 percent of the part owners and 16 percent of the tenants were in the top two economic classes. . . .

"Complete separation of use and ownership has long been the norm in money markets. Between the owners and the users (i.e., between the savers and the debtors) there has developed a complex institutional structure to facilitate the flow of money to places where

the rewards for its services are greatest. Thus, we can hypothesize that perfection in the market for resource services is closely related to separation of use and ownership. This is consistent with the observation that in parts of the Corn Belt, production of grain on rented land is now the predominant situation. . . . There is likely to be some narrowing in the wide range of returns to land use which have traditionally prevailed because the services of land were 'locked in' through ownership patterns. . . .

"Selling stock in a farm corporation is a way of pulling equity capital into farming. Similarly, crop and livestock share farming, vertical integration, hiring custom services, leasing, and production for sale under forward delivery contracts are among the direct and indirect means of acquiring access to capital owned by others. . . .

"Currently, for each dollar's worth of farm products sold at the retail level, only 39 cents gets back to the farmer who then distributes 31 cents to his resource suppliers. What the farmer gets is the value added by the act of bringing resource services together plus the returns to any resources he happens to own himself."

Stout (80, p. 364) asked,

"Why should not substantial corporations with investable funds, forced by anti-trust laws toward conglomerate merger, consider investments in an area where opportunities assume growth-industry proportions? (The recent Supreme Court decision on the Proctor and Gamble-Clorex merger could have tremendous implications for future growth patterns in agriculture.)"

The following are specific examples of developments aimed at nonfarm investors in agriculture.

Goetsch wrote,

"We are trying some new approaches such as land investment packages which are set up as limited partnerships with management contracted to Doane Agricultural Service. We also are cash leasing a few farms. These two moves give us a certain amount of 'captive farm management.' We expect the next big development must be some form of complete management package which can be provided to the very large properties owned by corporations or other groups. This would probably involve providing our own resident manager plus additional consultation and record-keeping." 39/

Goetsch said,

"International Systems had developed an investment package involving the BS&B Bacon Bin, a complete confinement swine production unit. . . . Environmental Applications Inc. is a new corporation formed for the purpose of producing market hogs from Bacon Bins on an 80-acre tract. . . . Initial production will be 13,000 hogs a year." 40/

Custom feedlots for cattle are designed for a similar purpose, as are certain land-holding firms that buy land and then lease it back to the original or another operator.

Services From Farm Suppliers or Custom Operators

In a recent report on farmers' expenditures for custom pesticide services, Jenkins, Eichers, Andrilenas and Fox (46, pp. iv, 1, 3, 6) said,

"About one-third of the farmers using pesticides on crops in 1964 used some custom

39/ Forest L. Goetsch, Manager, Publications Division, Doane Agricultural Services, Inc. Personal letter to author, Nov. 21, 1968.

40/ Op. cit. (p. 73), p. 3.

services and 27 percent of total farm expenditures for crop pesticide materials was for materials applied by custom operators. Only 5 percent of the livestock pesticide materials were custom applied.

"Of the $172 million that farmers spent for custom pesticide services on crops, two-thirds, or $113 million, was for material. The cost of applying the pesticide varied from 19 percent of the total custom cost for vegetables other than potatoes to 75 percent for hay and pasture. . . .

"Some of the major reasons farmers use custom pesticide application services are: (1) Technical knowledge, skill and costly specialized application equipment are needed for proper application, (2) farm labor may not be available at the critical time, and (3) dealers may offer the service at little or no charge when the farmer buys the materials. . . .

"The use of custom pesticide services does not appear to be influenced greatly by size of farm. About 30 percent of the farmers who used pesticides also used custom pesticide services in all of the groupings below $40,000 of farms according to gross sales. Forty-three percent of the farmers with sales of $40,000 or more used custom services. . . .

"Livestock generally was not treated by custom operators."

Lee also emphasized the shortage of skilled labor as a reason for increased use of custom services. He said,

"Direct access to high quality labor services (via wages) will be increasingly difficult. For this reason, an increasing proportion of labor services will likely be performed by specialists on a custom basis." 41/

Agribusinesses have moved quickly into this area as a means of increasing sales of particular brands. The following comments relate to this area.

In 1966, Scofield (73, p. 1381) wrote,

"The limited research on selected farm input industries thus far shows that rapid and dramatic changes are occurring in the distribution systems, in product differentiation, and in market structure and performance. For some items like farm machinery, the industry has long been characterized by a few large firms competing chiefly in terms of technical improvements in standard equipment such as tractors, or in the development of new labor-saving machines. Changes have been more dramatic in fertilizer and feed, chiefly in terms of greater product differentiation. This has been implemented by the inclusion of technical into the price structure. The guaranteed yield program offered by one of the chemical companies is a good example. If extended to several other strategic inputs, such transfers of the technical decision-making process to off-farm firms could substantially alter the traditional role of farm operators. Certainly, it is an emerging trend that is already operational for some farm products."

A year earlier, Kennedy (48, p. 1455) said,

"Commercial firms, especially chemical companies, are providing professional people to assist farm managers with specific problems. Almost all insecticide retail outlets provide entomology consulting service along with their products. It is getting more common in commercial banking for agricultural specialists to handle agricultural loans. . . . This trend is likely to spread to other businesses that sell products to agriculture."

Farrell outlined in detail activities by certain firms:

"Specifically, one big petroleum company is investing at least $110 million in 11 States, with the objective of capturing 15 percent of

41/ Op. cit., p. 9

the Midwest farm market by 1973. This investment should result in 200 company-owned-and-operated retail farm service centers in 1970--all selling petroleum products, tires, batteries, accessories, LP-gas, fertilizers, and agricultural chemicals.

"The spokesman for this company is quoted as saying: 'The idea: offer farmers a total package of products and services as a one-stop shopping concept. The pitch: profit programming: on how to use x's farm products and services to increase yields and profits. You might say we will be selling answers to these problems rather than selling products.'

"A second nationally known petroleum company is following a similar approach, though more limited in product mix.

"Challenging these petroleum corporate financed centers is another conglomerate, not primarily a petroleum company. It intends to locate centers in rural growth areas approximately 50 miles from each other: 'Early stages of development will call for a minimum of 12 centers per State in wheat, livestock areas, and at least 16 per State in other diversified farming areas. The key enterprise in each complex will be a farmers' supply store--a cash-and-carry operation furnishing all the farm related items that are used in repairing and maintenance of farm equipment. Also other tenants will include an automotive dealership, and implement and industrial equipment output, a discount lumber yard, a gasoline service station, a bulk petroleum tank farm, a liquid propane gas installation, fertilizer facility, grain and feed installation, a grocery market, a farm management company, farm insurance agency, finance and loan company, farm and loan real estate agent, tax and electronic accounting service, electronic farm record-keeping service, livestock marketing and management company, cafe and community center. Services of a veterinarian, agronomist, and nutritionist also will be available. Also, efforts will be made to establish the relocation of government agriculture offices.'" 42/

Goetsch discussed some similar operations. He said,

"When a farmer contracts with Grace (W.R. Grace and Company) for his specific seed corn requirements, it is possible that the most suitable fertilizer and chemical applications--the entire corn program--will be available from the Grace people. Crop and livestock production programs encompass genetics, nutrition and management."

International Minerals and Chemical Corporation has "a computerized crop management plan known as M.O.R.E. Profit Program. . . . After gathering all the pertinent information about your farming operation, IMC puts it into a computerized model and comes out with specific crop recommendations and the amount and kind of fertilizer, herbicides, and insecticides to apply. A cash flow schedule also is prepared. . . . In many cases, farmers have used the recommendations from the IMC program as reference material in obtaining financial assistance."

Monsanto Company has "a complete consultation service for crop farmers called 'Field Profit Analysis'. . . . Data are sent in to St. Louis, fed into a computer for linear programming, and the printout is then checked by an agronomist. Recommendations for fertilizer and weed control are sent back to the MAC center, where the local man adds his suggestions. . . . Custom application of fertilizer is made by Monsanto personnel, spraying services are offered at some

42/ Kenneth R. Farrell, A Look Ahead For the Agribusiness Industries, p. 10. Talk given at the National Agricultural Outlook Conference, Washington, D.C., Feb. 18, 1969.

locations. In some cases they have done custom plowing down of anhydrous, partly to promote fall application." 43/

Kyle Randall noted that the 1969 farm census program will include data on farm services but not include them as a part of the agricultural sector.

Management Services

In 1965, Kennedy (48, p. 1455) wrote,

"Managerial consulting firms have not, in the past, been widely used by farm operators; however, as managerial problems become more complex, such firms may be used as a specialized tool or resource to assist managers with their more crucial problems. It could be agriculture's answer for specialized management."

Nikolitch (62, p. 19) commented,

"Although farms under paid management in 1959 accounted for only 5 percent of marketing's for the country as a whole . . . . they accounted for more than 26 percent of total farm marketings by commercial farms in Florida, more than 20 percent in Nevada (and) about 15 percent in California." He also indicates that the figure for Arizona was 19 percent.

Table 20 shows data on farmland operated by paid managers. The percentage has been gradually increasing.

Nikolitch (60, p. iv) noted,

"Hired managers are more common on farms with $100,000 or more of sales than on smaller farms, but only 13 percent (of these) had hired managers in 1959."

Goetsch, in the letter referred to previously, said, "Our company regularly manages approximately 1,450 farms, including

Table 20.--Farmland operated by paid managers, 1924-64

Year	Farmland operated by paid managers	As percentage of U. S. total
	Mil. acres	Percent
1924	43	4.7
29	64	6.4
35	61	5.8
39	69	6.5
44	106	9.3
49	107	9.2
54	100	8.6
59	110	9.8
64	113	10.2

Source: 1964 Census of Agriculture (88, p. 754).

nearly 500,000 acres." This works out to an average of 345 acres per farm. He added, "We work for the absentee landowner in this type of farm management situation." Data in his letter indicated an average gross income in 1963 of around $10,000 per farm. He said, "In the better land areas of Illinois and Iowa our charge is 10% of the owner's gross income which is the typical rate for most professional farm managers."

He concluded,

"Farmer's National Company of Omaha is the other large farm management concern. They handle fully as many farms as we do. You then drop down to companies like Opekasit of Ohio and others in Indiana, most of which employ only four or five farm managers managing about 200 farms.

"A couple of years ago the estimate was made that some 10,000 farms were under some type of electronic record-keeping. This number will be going up rather rapidly as the various Production Credit Associations promote their

43/ Op. cit. (p. 73), p. 3.

system. In several areas the Federal Intermediate Credit Bank serving the PCA's is providing the computer for their members. The bank here in St. Louis expects to have nearly 1,000 PCA members keeping records on their computer in 1969. I noticed the one at Omaha has a goal of 400 accounts, one in the Northeast has 150 and one in the Northwest has 170."

In 1965, Nelson (58, pp. 1447-1448) wrote,

"Information available indicates that the computer can and will play a very significant role in management of commercial farms. . . .

"Consider, for example, a large commercial feedlot with an on-line terminal to a central computer. A computer-controlled feed mill could automatically determine and adjust feed mixes to the optimum on the basis of ingredient prices supplied the computer each time the price changed. Management would be relieved of making such decisions and the accuracy of decisions usually would be improved by the larger memory of the computer and the greater knowledge reflected in the computer program.

"In the area of nonprogrammed decisions, the possibilities are less clear but are promising. A major challenge is understanding human problem-solving processes. . . . In any event, computers can improve management by making it possible for the manager to have accurate, detailed information quickly. . . . He can share in the profit from results of research stored in the memory of the computer. . . . He could make more intelligent choices in operation of his business."

Kennedy (48, p. 1455) referred to a somewhat different area. He said,

"Market forecasting is not a new managerial tool, but interpretation is relatively new. ... This new tool has been especially beneficial to managers in the beef-producing industry. "Supply forecasting has been available for some time, but demand forecasting is relatively new. As planning horizons are lengthened, demand forecasting will be a useful tool for predicting future income."

In the Panhandle of Texas many new firms are being formed to provide accounting services for farmers by use of electronic computers. Some of these firms have rather elaborate plans to provide linear programing and other econometric-type solutions to various farm management problems. Some are associated with research organizations that supply economic forecasts. Most feedlots and many other livestock farmers compute least cost rations based on linear programing runs on computers. Accounting and economic-consulting firms appear destined to play a larger role in management decisions in future. 44/

Some Implications

The following quotations suggest implications of this new role for farmers.

Hathaway (34, p. 121) reported,

"Sixty-nine percent of a sample of Michigan farmers agreed that 'It is more important that farm people earn satisfactory incomes than it is to maintain the family farm system'. Moreover, 55 percent of these farmers agreed that farmers who can't make a satisfactory income from farming should plan to leave farming."

Harl (32, pp. 128-130) said,

"The firm may be viewed as an autonomous administrative unit transforming inputs into outputs pursuant to some entrepreneurial objective function and consistent with a technical production function. . . .

44/ For further possibilities in this and related areas, see Trelogan (83, pp. 78, 80-81) and Cochrane (12, pp. 32-42).

"It may well be that management is the key variable responsible for the behavior of the cost curve at high volumes. . . . The need exists for the configuration of cost curves at higher volumes of production. . . .

"This paper recognizes the duality of the firm as an economic entity engaged in resource allocation and income distribution and also as a legal institution representing, embodying and participating in interfirm and intrafirm relationships."

Irwin (44, p. 326) commented,

"Some important 'leading edge' implications for supply emphasis grow out of two developments: (1) the shift of agriculture from being heavily land and labor based to being capital based, and (2) the average aging of the labor force. . . .

"The switch to capital based production (is) . . . reflected particularly in reversibility, vulnerability, and uncertainty. Capital basing . . . involves higher cash costs as a percentage of gross income, and thus increases vulnerability. . . . Capital has been imbedded generally in larger enterprise size and increased specialization. . . . Because of the relative ease of entry into agriculture, the biological time lags between decisions and production and the high capital requirements, we have an almost classic opportunity for investment cycles resembling those of industry, and particularly in livestock breeding. Thus, . . . we need to examine firm supply functions with respect to identifying where they are reversible."

XIII. PROPOSALS FOR DEFINING AND CLASSIFYING FARMS

Many proposals have been made over the years with respect to what a farm is and how various groups of farms should be delineated. The suggestions quoted here have a bearing on my conclusions.

Bostwick (8, p. 1) said,

"A 'farm' is a locus of resources and activities, functionally concerned in the creation of agricultural products. We exclude processing and transport as activities of a farm, since they create place, time, or form utility, and use a primary agricultural product as an input."

This is a narrower definition than proposed by many, but one that has appeal to me. Present Census definitions are consistent with it.

In 1964, Ackerman and Riecken (1, pp. 1232, 1237), I assume somewhat facetiously, proposed the following:

"Perhaps the (farm) breakdown should read as follows:

Class F farms (rural poverty problems)
Class E farms (places to live)
Class D farms (places of part-time employment)
Class C farms (residual 'callings'--Agriculture as a way of life for an operator who will not change his vocation)
Class B farms (enterprises providing a current livelihood but little or no margin for growth)
Class A farms (competitive enterprises with a bright future)

"If such a breakdown were provided, policy makers would be devising more than one kind of policy. Farm suppliers, marketers, and credit agencies would be beaming their messages at the appropriate markets. And college teachers, researchers and extension personnel could be more specific, more positive and more useful in their work. . . .

"Through separating farm units into practical and meaningful classes, 'THE farm problem' loses its singularity and provides additional opportunities for practical, meaningful work by agricultural economists."

My recommendations are closely related to theirs.

Glen Barton suggested that agriculture be treated as an industry and that rural residents be considered in terms of gross income from all sources.

Earl Houseman pointed out that there is no longer a one-to-one relation between the farm as an economic firm and as a sociological unit. Hence, we need a universe of farm

establishments and one of rural households. He suggested that schedule F's filed for income tax purposes could be used as a sampling frame for farm firms. Or lists arranged by size and type might be developed by USDA from various sources. This would not replace area sampling but might change its role.

Houseman pointed out a number of inconsistencies in present industry classifications. For example, production of hybrid seed is in agriculture but might be better included in a sector along with farm machinery, fertilizer, insecticides, and other inputs. Feed mixing is part of agriculture if done at a feedlot or on farms, but not if done by a large, integrated poultry-producing or by a custom mixer. If done by one of the large firms feed mixing would be included in the Census of Manufactures: If done by a custom mixer, it is missed so far as economic accounting is concerned.

In 1962, Koffsky (50, p. 632) wrote,

"We should look forward to matching again the data from the Census of Agriculture and the Census of Population and Housing which will bring together the attributes of farm people and the characteristics of the farm. . . .

"Most important, in view of the rapidity of change in agriculture, we need to develop a means whereby the comprehensive information needed is obtained much more frequently."

In 1966, Taeuber (82, pp. 1670-1671) commented,

"The first question that might appropriately be raised (with respect to the 1969 Census of Agriculture) relates to the definition of the basis unit, the farm." . . . (With the present) "definition in effect, the one-third of all farms that were not classified as 'commercial' accounted for only 4 percent of the farm products sold. . . .

"Under the circumstances, it appears appropriate to ask whether it continues to be necessary to collect the full range of census information from the half of all farms which contribute so little to the total. . . . Information obtained in the Census of Population and Housing on the levels of living, sources of income, and characteristics of the people living in the open country might serve most of the needs of programs designed to benefit rural people."

I make a similar suggestion in the opening section.

Grove (30, pp. 281-282) said,

"The Census of Agriculture might well be confined to the publishing of farm characteristics in as much detail as possible, leaving the problem of economic classification and combination of farms to analysts who know what they want to analyze.

"Another possible approach would be simply to drop the commercial-noncommercial breakdown and nomenclature . . . but to retain the individual economic classes after eliminating the anomalous criteria now used for arbitrary subdivision of the lower value-of-scale classes."

This also is closely related to a suggestion that I make.

The following is a projection, not a suggestion, but it too has a bearing on recommendations made in this report.

Daly (13, pp. 418, 420) wrote,

"A change matrix, showing changes by farm size groups between 1954 and 1964 census years, was used as a basis for projecting farm numbers by 5-year intervals to 1980. Chaining forward on the basis of this matrix suggests a leveling in farm numbers around 1-1/2 million units sometime around 1990. . . .

"Projections to 1980 indicate about 2 million farms. Around a million of these would fall in size groups with sales above $10,000 per farm. . . . If all farms were organized like the $40,000-and-over sales group, projected production for 1980 probably could be provided by around 1/2 million farms. These would be farms with sales, in 1965 dollars, of around $110,000 per farm, net incomes of around $25,000, and productive assets of around $400,000 per farm. Implied employment on these farms would be equivalent to about 3 to 3-1/2 full-time men."

Table 21 shows these projections for major items.

Table 21.--Farms and farm income, by sales class, 1965 and projections for 1972 and 1980

Item	Farms with sales of --				All farmers
	Under $2,500	$2,500-5,000	$5,000-9,999	$10,000 and over	
	- - - - Thousands - - - -				
Number of farms					
1965	1,410	450	525	990	3,375
1972	1,030	285	355	1,005	2,675
1980	695	160	225	1,060	2,140
	- - - - Billion dollars - - - -				
Realized farm income:					
Gross --					
1965	3.0	2.0	4.4	35.5	44.9
1972	2.2	1.3	3.0	43.6	50.1
1980	1.5	.7	1.9	53.8	57.9
Net --					
1965	1.6	.9	1.9	9.8	14.2
1972	1.2	.6	1.3	11.4	14.5
1980	.8	.3	.8	13.5	15.4

Source: Daly (13, tables 5-7, pp. 419-420). Values are in terms of 1965 dollars.

LITERATURE CITED

(1) Ackerman, Jerry, and Riecken, Ted
1964. Development of Criteria for Classifying Farms. Jour. Farm Econ. 46:5:1232-1237.

(2) Allee, David J.
1966. Changing Use of Rural Resources. Jour. Farm Econ. 48:5:1297-1305.

(3) Arthur, H. B., Goldberg, R. A., and Bird, K. M.
1967. The United States Food and Fiber System in a Changing World Environment. Vol. IV, Technical Papers, National Advisory Com. on Food and Fiber. 82 pp.

(4) Bachman, K. L., Ellickson, J. C., Goodsell, W. D., and Hurley, Ray
1948. Appraisal of the Economic Classification of Farms. Jour. Farm Econ. 30:4:680-702.

(5) Benedict, M. R., Elliott, F. F., Tolley, H. R., and Taeuber, Conrad
1944. Need for a New Classification of Farms. Jour. Farm Econ. 26:4:694-708.

(6) Bertsch, Howard
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 91-101.

(7) Bishop, C. E.
1967. The Urbanization of Rural America: Implications for Agricultural Economics. Jour. Farm Econ. 49:5:999-1008.

(8) Bostwick, Don
1969. Partitioning Financial Returns: An Application to the Growth of Farm Firms. U.S. Dept. Agr., Econ. Res. Serv., ERS-390, Jan. 35 pp.

(9) Breimyer, Harold F.
1965. Individual Freedom and the Economic Organization of Agriculture. 314 pp. Univ. of Ill. Press, Urbana.

(10) Buel, Ronald A.
1969. Big Investors Round Up Tax Savings On Cattle They Often Never See. Wall St. Jour., Mar. 19, 1969, pp. 1, 12.

(11) Burroughs, R. J.
1949. Uses and Misuses of the Balance Sheet of Agriculture. Agr. Finance Review 12:22.

(12) Cochrane, Willard W.
1965. The City Man's Guide to the Farm Problem. 242 pp. Univ. of Minn. Press, Minneapolis.

(13) Daly, Rex F.
1968. Agriculture: Prospective Growth and Structural Change. In Rural Poverty in the United States, a report by the President's National Advisory Commission on Rural Poverty, pp. 415-420.

(14) Dechant, Tony T.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 9-14.

(15) DuBois, Pat
1968. Statement before the United States Senate Subcommitee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 70-91.

(16) Ducoff, Louis J.
1963. Occupations and Levels of Living. U.S. Dept. Agr. Yearbook (A Place to Live), 1963: 19-25.

(17) Duvick, Richard D., and Uhe, Joseph N.
1969. Large Farms and Above Parity Returns: Inseparable or Just Good Friends. Amer. Jour. Agr. Econ. 51:1:179-182.

(18) Ebers, Albert J.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 165-167.

(19) Edwards, Everett E.
1940. American Agriculture--The First 300 Years. U.S. Dept. Agr. Yearbook (Farmers In A Changing World), 1940: 171-276.

(20) Farris, Paul L.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 21, 1968, pp. 175-188.

(21) Fuller, Varden, and Beale, Calvin L.
1967. Impact of Socioeconomic Factors on Farm Labor Supply. Jour. Farm Econ. 49:5:1237-1243.

(22) Fuller, Varden
1968. Hired Farm Labor in the West. In Rural Poverty in the United States, a report by the President's National Advisory Commission of Rural Poverty, pp. 421-441.

(23) Gallimore, William W.
1965. Contracting and Other Integrating Arrangements in the Turkey Industry. U.S. Dept. Agr., Mktg. Res. Rpt. 734, Nov. 43 pp.

(24) Gallimore, William W., and Vertrees, James G.
1968. A Comparison of Returns to Poultry Growers . . . Under Contract . . . Operating Independently. U.S. Dept. Agr., Mktg. Res. Rpt. 814, Feb. 42 pp.

(25) Goodsell, Wylie D.
1957. Costs and Returns on Commercial Family-Operated Farms by Type, Size, and Location. U.S. Dept. Agr., Agr. Handb. 118, p. 81-106.

(26) Grain Producers News
1969. The Economic Impact of Feedlots. Grain Producers News. 20:9:3.

(27) Grain Producers News
1969. Who Is A Farmer ? Grain Producers News. 20:9:12-13.

(28) Gross, Sydney L.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 14-17.

(29) Grove, Ernest, W., Cannon, Margaret F., and Masucci, Robert H.
1957. Farm Income and Expenditures. U.S. Dept. Agr., Agr. Handb. 118 p. 1-80.

(30) Grove, Ernest W.
1963. The New Dichotomy in Agriculture. Jour. Farm Econ. 45:2:277-284

(31) Grove, Ernest W.
1967. Farm Labor and the Structural Analysis of Agriculture. Jour. Farm Econ. 49:5:1245-1253.

(32) Harl, Neil E.
1967. Organization and Structure of Producer Unit of Farm Products, Rpt. 19, Iowa State University Center for Agricultural and Economic Adjustment, pp. 128-159. Iowa State Univ. Press, Ames.

(33) Hathaway, Dale E., and Waldo, Arley D.
1964. Multiple Jobholding by Farm Operators. Res. Bul. 5, Mich. Agr. Expt. Sta., East Lansing. 79 pp.

(34) Hathaway, Dale E.
1967. Agriculture's Status and Potential, Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, pp. 120-127. Iowa State Univ. Press, Ames.

(35) Hathaway, Dale E., and Perkins, Brian B.
1968. Farm Labor Mobility, Migration, and Income Distribution. Amer. Jour. Agr. Econ. 50:2:342-353.

(36) Hathaway, Dale E., and Perkins, Brian B.
1968. Occupational Mobility and Migration from Agriculture. In Rural Poverty in the United States, a report by the President's National Advisory Commission on Rural Poverty, p. 185-237.

(37) Heady, Earl O., and Ball, Gordon A.
1967. Research Implications of Farm Firm Changes In Response to Wage Rates and Increased Demands. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 160-178. Iowa State Univ. Press, Ames.

(38) Higbee, Edward
1963. Farms and Farmers in an Urban Age. 163 pp. The Twentieth Century Fund, New York.

(39) Hill, Howard L., and Maier, Frank H.
1963. The Family Farm in Transition, U.S. Dept. Agr. Yearbook (A Place to Live), 1963, 166-174.

(40) Hillman, Jimmye S.
1967. Food and Fiber Policy for a Changing Agriculture. Jour. Farm Econ. 49:5:1057-1070.

(41) Hurley, Ray
1962. Census Concepts: Past, Present and Future. Jour. Farm Econ. 44:2:616-621

(42) Hurley, Ray
1965. Problems Relating to Criteria for Classification of Farms. Jour. Farm Econ. 47:5:1565-1571.

(43) Houthakker, Hendrik S.
1967. Economic Policy for the Farm Sector. 61 pp. American Enterprise Institute for Public Policy Research, Washington, D.C.

(44) Irwin, George D.
1967. On Orienting Farm Commodity Research to Structural and Market Change. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 320-330. Iowa State Univ. Press, Ames.

(45) Irwin, George D.
1968. Report on Study Group on Financial Structure of Agriculture. U.S. Dept. Agr., Econ. Res. Serv., Farm Prod. Econ. Div. 38 pp.

(46) Jenkins, Robert, Eichers, Theodore, Andrilenas, Paul, and Fox, Austin.
1968. Farmers' Expenditures for Custom Pesticide Service in 1964. U.S. Dept. Agr., Agr. Econ. Rpt. 146, Oct. 24 pp.

(47) Kellogg, Lester S.
1967. Changing Agriculture and Its Demands for Capital Equipment and Management. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 10-21. Iowa State Univ. Press, Ames.

(48) Kennedy, Rex P.
1965. The Management Factor in Commercial Agriculture: New Tools for the Manager. Jour. Farm Econ. 47:5:1452-1456.

(49) Kirkendall, Richard S.
1966. Social Scientists and Farm Politics in the Age of Roosevelt. 358 pp. Univ. of Mo. Press, Columbia.

(50) Koffsky, Nathan M.
1962. Analytic Concepts: Changes Induced by Technological and Economic Developments. Jour. Farm Econ. 44:2:625-632.

(51) Kohls, R. L.
1967. Implications of the findings of Marketing Research to Research in Agricultural Policy. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 332-339. Iowa State Univ. Press, Ames.

(52) Lee, John E., Jr.
1968. Changes in the Financial Structure of the Farm Sector and Implications for Research. Amer. Jour. Agr. Econ. 50:5:1552-1564.

(53) Mayer, Leo V. Heady, Earl O., and Madsen, Howard C.
1968. Farm Programs for the 1970's. Rpt. 32, Iowa State University Center for Agricultural and Economic Adjustment. 60 pp. Iowa State Univ. Press, Ames.

(54) McElroy, Robert C.
1968. The Hired Farm Working Force of 1967--A Statistical Report. U.S. Dept. Agr., Agr. Econ. Rpt. 148, Oct. 31 pp.

(55) McElveen, Jackson V.
1963. Farm Numbers, Farm Size, and Farm Income. Jour. Farm Econ. 45:1:1-12.

(56) Mighell, Ronald L., and Jones, Lawrence A.
1963. Vertical Coordination in Agriculture. U.S. Dept. Agr., Econ. Rpt. 19, Feb. 90 pp.

(57) Mighell, Ronald L., Jones, Lawrence A., and Gavett, Earle E.
1964. Contract Production of Truck Crops, 12 Selected Areas: United States. U.S. Dept. Agr., Econ. Res. Serv., ERS-152 Mar. 31 pp.

(58) Nelson, Aaron G.
1965. The Management Factor In Commercial Agriculture. Jour. Farm Econ. 47:5:1446-1448.

(59) Nikolitch, Radoje
1962. Family Labor and Technological Advance in Farming. Jour. Farm Econ. 44:4:1061-1068.

(60) Nikolitch, Radoje
1964. Our 100,000 Biggest Farms, Their Relative Position in American Agriculture. U.S. Dept. Agr., Agr. Econ. Rpt. 49, Feb. 28 pp.

(61) Nikolitch, Radoje
1965. The Adequate Family Farm--Mainstay of the Farm Economy. Agr. Econ. Res. 18:3:84-89.

(62) Nikolitch, Radoje
1965. The Expanding and Contracting Sectors of American Agriculture. U.S. Dept. Agr., Agr. Econ. Rpt. 74, May 35 pp.

(63) Nikolitch, Radoje, and McKee, Dean E.
1965. The Contribution of the Economic Classification of Farms to the Understanding of American Agriculture. Jour. Farm Econ. 47:5:1545-1554.

(64) Padberg, D. I.
1966. Efficiency and Welfare Considerations in Integrated Agriculture. Jour. Farm Econ. 48:5:1391-1400.

(65) Peterson, Everett E. and Vollmar, Glen
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 117-164.

(66) Radcliff, Ben H.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., May 20, 1968, pp. 17-41.

(67) Raup, Philip M.
1968. Statement before the United States Senate Subcommittee on Monopoly of the Select Committee on Small Business, 90th Cong., 2nd Sess., July 22, 1968, pp. 238-249.

(68) Ray, Victor K.
1968. The Corporate Invasion of American Agriculture. 103 pp. National Farmers Union, Denver.

(69) Reinsel, Edward I.
1968. Farm and Off-farm Income Reported on Federal Tax Returns. U.S. Dept. Agr., Econ. Res. Serv., ERS-383, Aug. 33 pp.

(70) Reinsel, Edward I.
1968. Labor Movements Between Farm and Nonfarm Jobs: Comment. Amer. Jour. Agr. Econ. 50:3:745-747.

(71) Ruttan, Vernon W.
1966. Agricultural Policy in an Affluent Society. Jour. Farm Econ. 48:5:1100-1120.

(72) Schuh, G. Edward
1967. Structural Changes in the Farm Labor Market. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 22-50. Iowa State Univ. Press, Ames.

(73) Scofield, William H.
1966. Analyzing the Structure of Agribusiness Relations. Jour. Farm Econ. 48:5:1379-1390.

(74) Scofield, William H., and Coffman, George W.
1968. Corporations Having Agricultural Operations: A Preliminary Report. U.S. Dept. Agr., Agr. Econ. Rpt. 142, Aug. 23 pp.

(75) Scoville, Orlin J.
1947. Measuring the Family Farm. Jour. Farm Econ. 29:2:506-519.

(76) Shaffer, James Duncan
1968. A Working Paper Concerning Publicly Supported Economic Research In Agricultural Marketing. U.S. Dept. Agr., Econ. Res. Serv. 46 pp.

(77) Simpson, Glenn D.
1966. Resources and Facilities for Providing Needed Statistics: The Role of the Statistical Reporting Service. Jour. Farm Econ. 48:5:1674-1682.

(78) Steen, Herman
1968. The Big Protein Company. The Southwestern Miller. 47:39:28.

(79) Stocker, Frederick D. and Ellickson, John C.
1959. How Fully Do Farmers Report Their Income ? Natl. Tax Jour. 12:2:116-126.

(80) Stout, Thomas T.
1967. Effect of Changes in Market Structure on Ownership Patterns of Wealth and on the Distribution of Incomes, Rights and Privileges. Rpt. 29, Iowa State University Center for Agricultural and Economic Adjustment, p. 360-369. Iowa State Univ. Press, Ames.

(81) Taeuber, Conrad
1963. Rural Americans and the Rest of Us. U.S. Dept. Agr. Yearbook (A Place to Live), 1963: 13-18.

(82) Taeuber, Conrad
1966. Resources and Facilities for Providing Needed Statistics: The Role of the Bureau of the Census. Jour. Farm Econ. 48:5:1667-1673.

(83) Trelogan, Harry C.
1968. Cybernetics and Agriculture. Agr. Econ. Res. 20:3:77-81.

(84) U.S. Bureau of the Budget
1969. Standard Industrial Classification Manual, 1967.

(85) U.S. Bureau of the Census
1952. Census of Agriculture, 1950. Vol. II, General Report, Statistics by Subjects.1,364 pp.

(86) U.S. Bureau of the Census
1966. Census of Agriculture, 1964. Statistics by Subject: Ch. 6, Value of Farm Products Sold and Economic Class of Farm, pp. 593-669.

(87) U.S. Bureau of the Census
1968. Census of Agriculture, 1964. Statistics by Subjects: Introduction, pp. I-LXIV.

(88) U.S. Bureau of the Census
1968. Census of Agriculture, 1964. Statistics by Subjects: Ch. 8, Color, Race and Tenure of Farm Operator. pp. 741-905.

(89) U.S. Department of Agriculture
1966. Costs and Returns on Commercial Farms, Longterm Study, 1954-63. U.S. Dept. Agr., Statis. Bul. 368. 109 pp.

(90) U.S. Department of Agriculture
1967-68. Farm Costs and Returns, Commercial Farms by Type, Size, and Location. U.S. Dept. Agr., Agr. Inform. Bul. 230.

(91) U.S. Department of Agriculture, Economic Research Service
1968. Farm Income Situation, July 1968. 75 pp.

(92) U.S. Department of Treasury, Internal Revenue Service
1968. Business Income Tax Returns, 1965. Internal Revenue Serv. Pub. 438. 391 pp.

(93) U.S. Senate
1967. Parity Returns Positions of Farmers. Senate Doc. 44, 90th Cong., 1st Sess. 57 pp.

(94) U.S. Senate
1968. Corporation Farming. Hearings before the Subcommittee on Monopoly of the Select Committee on Small Business, Great Plains and Upper Midwest, May 20-21 and July 22, 1968, 90th Cong., 2nd Sess. 449 pp.

(95) Waldo, Arley D.
1965. The Impact of Outmigration and Multiple Jobholding upon Income Distribution in Agriculture. Jour. Farm Econ. 47:5:1235-1244.

(96) Wall Street Journal
1969. Administrations Proposed Tax Reforms. Wall St. Jour., April 23, 1969, pp. 3, 8.

(97) Welsch, Delane E., and Moore, Donald S.
1965. Problems and Limitations Due to Criteria Used for Economic Classification of Farms. Jour. Farm Econ. 47:5:1555-1564.

(98) Williams, Willard F.
1966. Structure and Conduct of the Commercial Cattle Feeding Industry. Supp. 1 to Tech. Study 1, National Committee on Food Marketing 80 pp.

APPENDIX

Table 22.--Number of farms and percentage of farms and of total value of farm production that would be eliminated if the minimum value of sales was raised to selected levels, by State

State	All farms	Percentage of total value of farm production eliminated using cutoff of --					
		$2,500 1/	$5,000	$10,000	$2,500 1/	$5,000	$10,000
		Farms			Value of products sold		
	Number	Percent					
Maine	12,875	46	54	62	1.9	3.2	6.2
New Hampshire	4,648	50	60	72	4.5	7.9	16.0
Vermont	9,247	27	37	55	2.2	5.0	15.9
Massachusetts	8,019	35	46	60	3.9	6.1	12.1
Rhode Island	1,100	39	49	62	4.8	6.9	12.2
Connecticut	6,068	38	46	58	2.5	3.8	7.4
New York	66,510	33	44	60	2.6	5.8	15.4
New Jersey	10,641	28	39	52	2.4	4.3	9.0
Pennsylvania	83,086	44	56	71	4.9	9.5	20.8
Ohio	120,381	42	58	75	5.1	11.9	26.4
Indiana	108,082	36	52	69	3.8	9.3	21.4
Illinois	132,822	20	31	49	1.5	4.0	12.0
Michigan	93,504	42	59	76	5.4	12.9	27.2
Wisconsin	118,806	24	41	68	3.0	9.8	31.3
Minnesota	131,163	23	39	65	2.6	8.3	26.4
Iowa	154,162	13	23	44	1.0	3.2	12.3
Missouri	147,315	47	64	80	6.2	14.7	30.9
North Dakota	48,836	12	28	59	1.4	6.4	26.3
South Dakota	49,703	14	29	58	2.0	6.5	23.8
Nebraska	80,163	15	29	54	1.2	4.4	15.5
Kansas	92,440	26	42	66	2.4	7.3	20.5
Delaware	4,401	28	39	52	1.3	2.9	6.6
Maryland	20,760	38	52	66	3.2	6.9	14.7
Virginia	80,354	59	75	87	8.8	18.2	33.1
West Virginia	34,504	83	90	95	19.1	28.5	40.7
North Carolina	148,202	44	60	80	5.3	13.5	33.0
South Carolina	56,248	58	74	87	7.7	16.7	31.9
Georgia	83,366	50	62	75	4.1	8.5	17.9
Florida	40,542	56	67	77	1.8	3.4	6.4
Kentucky	133,038	56	76	90	12.7	28.7	51.6
Tennessee	133,446	64	82	92	15.7	31.3	49.4
Alabama	92,530	66	78	87	9.0	16.5	27.3
Mississippi	109,141	67	82	90	8.4	16.3	24.4
Arkansas	79,898	60	71	79	4.3	8.1	13.8
Louisiana	62,466	68	78	85	7.2	12.5	20.2
Oklahoma	88,726	53	68	82	6.8	14.8	30.1
Texas	205,110	53	66	77	4.3	8.5	16.0
Montana	27,020	20	34	56	2.5	5.8	16.2
Idaho	29,661	30	40	62	2.0	5.1	13.4
Wyoming	9,038	23	37	57	1.9	5.0	13.8
Colorado	29,798	31	45	61	1.6	4.1	10.1
New Mexico	14,206	48	60	71	4.1	6.7	11.9
Arizona	6,477	36	44	54	3.6	4.0	4.9
Utah	15,759	45	61	76	6.0	11.7	22.4
Nevada	2,156	34	46	60	3.2	5.0	9.2
Washington	45,574	50	59	69	3.2	5.6	10.8
Oregon	39,759	55	66	76	4.0	7.7	14.7
California	80,852	36	46	57	.9	1.7	3.6
Alaska	382	59	69	76	5.9	9.5	14.2
Hawaii	4,864	54	68	80	1.4	2.7	5.0
United States	3,157,857	42	56	72	3.6	8.2	18.5

1/ Class VI plus part-time, part-retirement and abnormal farms.

Source: Compiled from U.S. Bureau of the Census (86, table 13, p. 636).

Table 23.--Number of farms and percentage that would be eliminated if the minimum value of sales was raised to selected levels, by State

State	All farms	Percentage of farms eliminated using cutoff of --								
		$250	$500	$1,000	$1,500	$2,000	$2,500	$5,000	$7,500	$10,000
	Number	Percent								
Maine	12,875	16	25	35	40	44	46	54	58	62
New Hampshire	4,648	18	26	37	43	47	50	60	67	72
Vermont	9,247	8	13	18	22	25	27	37	46	55
Massachusetts	8,019	8	14	22	28	32	35	46	54	60
Rhode Island	1,100	11	16	25	32	36	39	49	56	62
Connecticut	6,068	12	18	26	32	35	38	46	53	58
New York	66,510	8	13	21	26	29	33	44	53	60
New Jersey	10,641	5	9	16	21	25	28	39	47	52
Pennsylvania	83,086	12	19	29	36	41	44	56	64	71
Ohio	120,381	9	15	25	32	38	42	58	68	75
Indiana	108,082	6	11	20	26	31	36	52	61	69
Illinois	132,822	3	6	11	14	18	20	31	40	49
Michigan	93,504	7	13	23	31	37	42	59	69	76
Wisconsin	118,806	4	7	12	16	20	24	41	56	68
Minnesota	131,163	3	6	11	15	19	23	39	53	65
Iowa	154,162	2	4	6	9	11	13	23	34	44
Missouri	147,315	11	17	28	36	42	47	64	74	80
North Dakota	48,836	1	2	5	7	9	12	28	44	59
South Dakota	49,703	2	3	5	8	11	14	29	44	58
Nebraska	80,163	2	4	6	9	12	15	29	43	54
Kansas	92,440	4	7	12	17	21	26	42	56	66
Delaware	4,401	5	10	16	21	25	28	39	45	52
Maryland	20,760	8	14	23	29	34	38	52	60	66
Virginia	80,354	16	25	38	48	54	59	75	83	87
West Virginia	34,504	34	48	66	75	80	83	90	93	95
North Carolina	148,202	12	19	28	35	40	44	60	72	80
South Carolina	56,248	18	27	40	48	53	58	74	82	87
Georgia	83,366	19	27	36	42	47	50	62	70	75
Florida	40,542	23	32	42	48	52	56	67	73	77
Kentucky	133,038	10	17	31	41	49	56	76	85	90
Tennessee	133,446	12	21	38	49	58	64	82	88	92
Alabama	92,530	20	31	45	54	61	66	78	84	87
Mississippi	109,141	20	31	45	54	61	67	82	87	90
Arkansas	79,898	21	30	43	50	56	60	71	76	79
Louisiana	62,466	30	41	52	60	65	68	78	83	85
Oklahoma	88,726	14	22	34	42	48	53	68	76	82
Texas	205,110	15	24	35	43	49	53	66	73	77
Montana	27,020	3	6	12	14	19	20	34	46	56
Idaho	29,661	4	10	16	22	23	30	40	52	62
Wyoming	9,038	4	7	12	16	20	23	37	48	57
Colorado	29,798	7	12	18	22	26	31	45	54	61
New Mexico	14,206	14	22	33	40	44	48	60	67	71
Arizona	6,477	11	17	25	30	33	36	44	50	54
Utah	15,759	8	16	26	34	40	45	61	70	76
Nevada	2,156	8	13	20	26	30	34	46	54	60
Washington	45,574	17	26	36	42	46	50	59	64	69
Oregon	39,759	18	27	39	46	51	55	66	72	76
California	80,852	11	17	25	30	33	36	46	52	57
Alaska	382	25	33	44	49	53	59	69	73	76
Hawaii	4,864	7	17	34	42	49	54	68	75	80
United States	3,157,857	11	17	27	33	38	42	56	66	72

Source: Compiled from U.S. Bureau of the Census (86, table 14, p. 637).

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